IRON AGE

editorial

First Things Come First

NO one in his right mind would deny that defense orders should come first, should be produced quickly and that sacrifices should be made. Industry is not only ready to do what the armed forces and the government want but it is putting the needle in for speed.

There is alarming talk coming from Washington about drastically cutting back this or that. We hear that the auto industry will be cut off from so much steel as they have been denied non-ferrous metals. That is well and good—*if* the government has the orders that will immediately use up the material that has been cut back.

Appliances, toys and what not may soon be restricted by the National Production Authority. That is all right too if the material saved by the cutback can be used for defense purposes. But the story up to this time does not speak too well for some of Mr. Wilson's departments.

The Defense Act specifically says that defense and indirect defense items should have the right of way. That goes without saying. The American people are not only in favor of that but they think the government is moving at a snail's pace.

There are no cases where the armed services are not getting complete cooperation from steel and other basic industries. But there are cases where industry is not getting cooperation from government.

Some companies are rushing production of material—on orders from Washington—when the plants to make the end product haven't even tooled up. There are cases where there has been no integration of the program as a whole. Scarce material is being taken from the civilian economy before defense programs can take it.

You expect a certain amount of this looseness in tooling up for defense. We had it before and we will have it again. But this time we are not in an all-out war. The economy has to be strong to take care of huge expenditures and taxes for defense. If we waste by making haste before a program is ready we hit that economy where it hurts—in unemployment and loss of production.

The law also says that after the defense program has been adequately taken care of the rest of the material being made by industry should be equitably distributed throughout the civilian economy. That is not the trend today. The NPA seems interested in cutting back specific industries like autos and appliances. The Defense Act doesn't read that way.

Industry should be cut back on non-defense activity when and as the armed services get their orders in. To cut back on any civilian activity before defense orders are ready to absorb the cutback is not only foolish, it is dangerous.

Tom Campbell

Editor

UNIVERSITY OF MICHIGAN LIBRARIES

FIRST PRESS DESIGNED AND MANUFACTURED IN THE UNITED STATES FOR THE COLD EXTRUSION OF STEEL

● Developed by Lake Erie Engineering Corporation in collaboration with Mullins Manufacturing Corporation of Salem, Ohio.

Press has a bed area 72″ x 60″, 108″ daylight opening and 60″ stroke. It stands 35′ 39″ above the floor and extends 21′ below the floor, where a 250 ton hydraulic ejector is located in the bed of the press. The press weighs over 700,000 pounds and is complete with a high-speed self-contained pumping unit, powered by 900 HP motors. Many of these specifications are in excess of those required for production equipment and are incorporated in the press to provide flexibility for experimental and research work.

IRON AGE *summary*

iron and steel industry trends

Small firms hit by cutbacks . . . But defense orders aren't taking up the slack . . . Big tooling lag a factor . . . NPA readies CMP.

NEVER was the pain of an economy shifting from peace to war goods more evident than it is this week. Dr. NPA is finding that Mr. Economy is a very sensitive patient, who requires extremely accurate medication. Too much stimulant here or too little sedative there might prove fatal.

This week injured members are sending cries of protest through the patient's nervous system. Hardest hit, as usual, are the small metal fabricators. They are being starved by material cutbacks. Juicy defense contracts, which could nourish them are not being received in quantity. Many of these small fabricators will eventually get defense contracts or subcontracts—if they can hold out that long. Meanwhile, they are in a tough spot and making themselves heard.

Dislocation from War Work Shift

This economic dislocation largely results from the time lag in shifting production from peace to war goods. Some of the major contracts that already have been placed will require as much as 18 months for tooling up before assembly line production can begin. This explains why the machine tool industry is staggering under an ever increasing backlog of orders, while many small manufacturers face production curtailment. Many of them cannot weather such a long storm.

The small manufacturer's salvation is to land a defense contract or a subcontract. To do this he must sell the one product he has left—productive capacity.

Increasing the limits of defense (DO) orders which steel mills must accept is also hitting the small manufacturer—especially if his steel has been coming from mills now forced to roll plate on sheet or strip mills. For example, the increase to 20 pct on carbon plates and 17 pct on hot-rolled sheets means that the hot-rolled sheet producer using his mill for rolling plates is diverting at least 37 pct of his sheet capacity to DO orders. This does not include tonnage he must provide for essential civilian programs, warehouses, and non-integrated mills. During the second quarter some mills will be channeling more than 50 pct of their hot-rolled sheet into essential programs.

Means Greater Loss of Sheets

Any increases in orders for tank plate will multiply the effect on sheet production. One producer estimates that every ton of tank plate produced on a sheet mill means a loss of 4 tons of sheet. This is due to the rigid specifications for this type of plate and the extreme care required in processing it.

In addition to existing allocation programs, the following are slated to start in May: Merchant vessels, barges, locomotives for the U. S. and Canada, oil country goods and wheel head equipment for the petroleum industry, maritime ship program, ocean-going ship repair, drums and pails. Still under consideration are heavy power equipment, power plants and highways. It is estimated that these programs will take about a million tons of steel during May.

The National Production Authority seems determined to install its new controlled materials plan on steel, copper and aluminum on July 1—ready or not. Unless a lot of detail work is done between now and then, they will not be ready. CMP in name only, or prematurely installed, could do more harm than good.

CMP Needs a Lot of Spadework

Just putting the CMP label on a plan will neither guarantee priorities nor guide production. To be effective CMP will have to be preceded by long and careful planning, detailed screening of material, requests from all types of consumers, and a selective buildup of administrative people.

Steelmaking operations this week are scheduled at 99.5 pct of rated capacity, up 1 point from the previous week.

(nonferrous summary, p. 120)

UNIVERSITY OF MICHIGAN LIBRARIES

The 3 R's of Reliance Service

RELIANCE *Job-Fitted* PRODUCTS AND SERVICES

COLD ROLLED STRIP STEEL

Coils . . . Cut Lengths . . . All Tempers
Slit, Sheared, Deburred
and Round Edge
From WAREHOUSE
or
DIRECT-FROM-MILL

SHEETS

Cold Rolled . . . Hot Rolled
Hot Rolled Pickled . . . Long Terne
Galvanized
Standard or production sizes
or cut to actual working
dimensions
from
WAREHOUSE STOCKS

Big plants . . . .extensive processing, handling and shipping facilities . . . a widespread organization — all these things help make Reliance Service *resourceful* and *responsible*.

But the things that make Reliance Service *responsive* are not measured by size or number. Over the years they reflect a concern's attitude toward its customers and their needs . . . a readiness to work closely with them . . . almost as an integral part of their business.

In our case they spell 28 years of day-in and day-out specialized experience, living with and licking sheet and strip steel problems . . . knowing the possibilities as well as the limitations of our products . . . knowing how they can best fit your jobs.

DEPENDABLE DAN
OUR CUSTOMERS' MAN

Reliance Job Fitting Service is a way of doing business that works for you . . . whether steel is plentiful or scarce, in peace time or in war (either cold or hot).

STEEL—BACKBONE OF AMERICA'S ARMAMENT

For Immediate Action Call The Nearest Reliance Plant or Office:

DETROIT STEEL CORPORATION

PRODUCERS OF
Coke and Coal Chemicals • Pig Iron • Ingots
Slabs • Sheet Bars • Billets • Wire Rods
Manufacturers' Wire • Merchant Wire Products
Welded Fabric • Cold Rolled Strip Steel

GENERAL OFFICES
DETROIT 9, MICHIGAN

RELIANCE STEEL DIVISION

Processors and Distributors JOB-FITTED Sheet and Strip Steel

GENERAL OFFICES — BOX 4308 — PORTER STATION, DETROIT 9, MICHIGAN

PLANTS

CLEVELAND PLANT, 3344 E. 80th St., VUlcan 3-3600, Cleveland 4, O.
DETROIT PLANT, 13770 Joy Road, WEbster 3-5866, Detroit 28, Mich.
EASTERN PLANT, State & Edmund Sts. (Hamden), New Haven 7-5781, New Haven 7, Conn.
MIDWEST PLANT, 1601 South Wolcott Ave., CAnal 6-2442, Chicago 8, Ill.

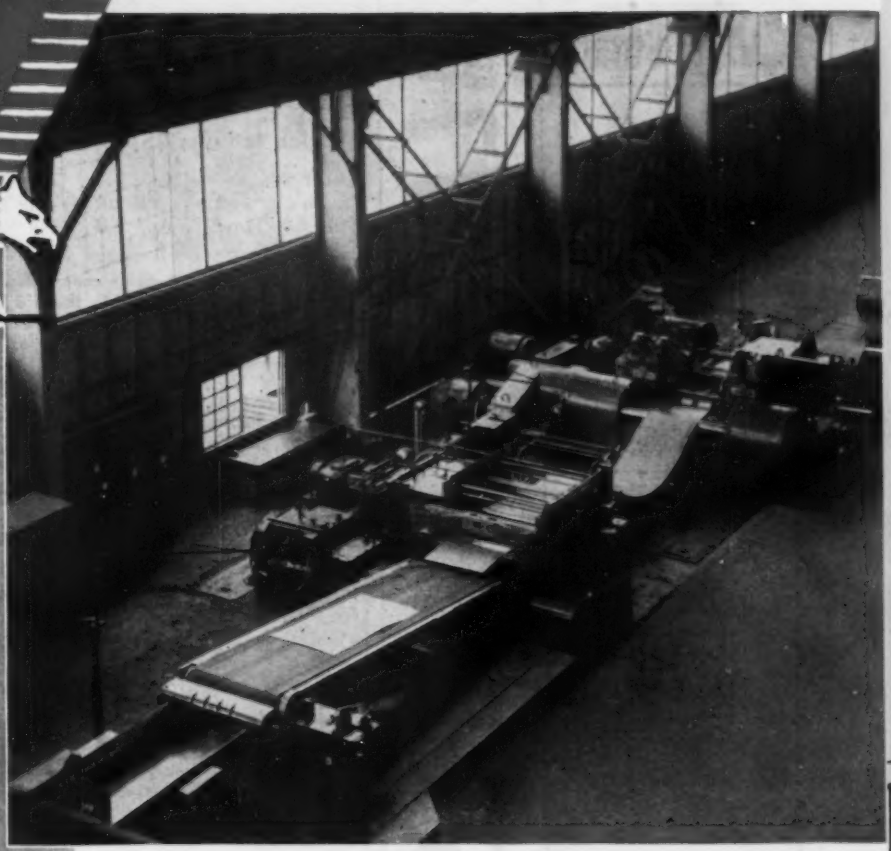
OFFICES

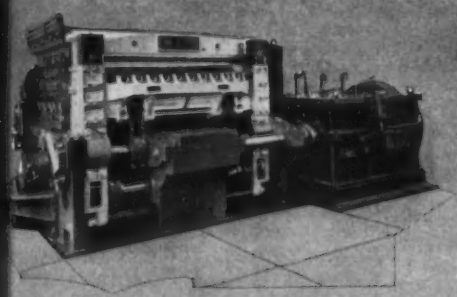
DETROIT 28, MICH., 13770 Joy Road, WEbster 3-5000
GRAND RAPIDS 2, MICH., 326 Keeler Bldg., GLendale 6-9560
INDIANAPOLIS 4, IND., 1400 Fletcher Trust Bldg., FRanklin 3429
JACKSON 18, MICH., 801 Reynolds Bldg., JAckson 3-3258
NEW YORK 19, N. Y., 250 West 57th St., COlumbus 5-4370
ST. LOUIS 8, MO., 4053 Lindell Blvd., LUcas 4550
TOLEDO 4, OHIO, 2114 Ohio Bldg., GArfield 6384
WORCESTER 8, MASS., 339 Main St., WOrcester 5-8686

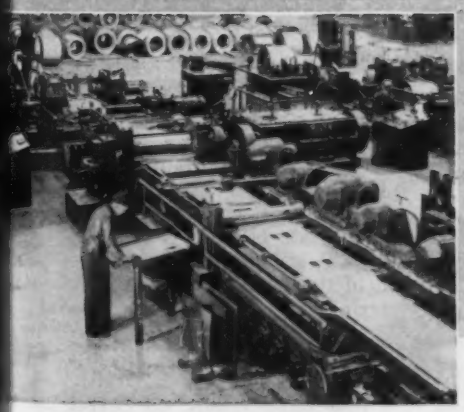
COPYRIGHT 1951 D S C

WEAN

SHEET AND TIN PLATE SHEARING *Lines*







HIGH-SPEED, high-tonnage production . . . unsurpassed accuracy . . . rugged construction that minimizes operating and maintenance costs.

Modern Wean sheet and tin plate shearing lines for converting strip in coil form to flat sheets provide all these advantages.

ECIALISTS IN SHEET, TIN
STRIP MILL EQUIPMENT

THE WEAN ENGINEERING CO., INC.
WARREN, OHIO

UNIVERSITY OF MICHIGAN LIBRARIES

AIRCRAFT
QUALITY
Alloy Steels

AVAILABLE FOR IMMEDIATE SHIPMENT FROM OUR CHICAGO WAREHOUSE.

SPECIFICATIONS

AMS 6260
AMS 6270
AMS 6272
AMS 6280
AN-S-14A
AMS 6324
AMS 6415
AN-QQ-756A
AMS 6320 (Hex)

ROUNDS—HEXAGONS
COLD DRAWN
HOT ROLLED

WE SEND A CERTIFIED ANALYSIS WITH EVERY AIRCRAFT SHIPMENT, AND THE RESULTS OF JOMINY HARDENABILITY TESTS WHERE NECESSARY.

OUR COMPLETE STOCK LIST OF AIRCRAFT, ALLOY & 1045 HR SENT UPON REQUEST.

HY-ALLOY STEELS CO.
30 N. LASALLE
CHICAGO 2, ILL.
RAN. 6-5253

Dear EDITOR

letters from readers

Which Is Legal?

Sir:

In the Jan. 4 issue under the heading of "How To Sell To Uncle Sam," on p. 270, you state that:

> "An important point concerns obtaining of contracts with the aid of an agent (a full-time employee is not considered an agent) or what is sometimes known as a "five per-center" because he works on a commission basis. There is no law against employing an agent to look after a supplier's interests or even to obtain government contracts. But, and this is a big if, if such is done it must be reported on the contracts together with the amount of the fee paid. Failure to do so is cause for cancellation. And payment on a contingency or commission basis is definitely forbidden—only specific salaries or fees are permitted."

Frankly, I am not able to make head or tail out of this statement; in one section you interpret this to say that so long as the contractor states that he is paying a fee, together with the amount he is paying to a bonafide agent, that such a fee is permitted. On the other hand you state that a contingency or commission basis is definitely forbidden.

J. W. MOORE
John Moore Specialty Co.
Chicago

The situation is this: It is legal for a contractor to include in his cost a salary or flat fee paid to an agent, but it is illegal to include a percentage brokerage or commission fee for individual contracts.—Ed.

Wants Steel Piles

Sir:

I am trying to find out whether or not there is on the market, a steel post which could be driven into the ground to support a frame garage, as a substitute for laying a cement foundation. Could you refer me to a company which might be most apt to have such a product in its line?

P. G. PRESCOTT
Chicago

Although heavy structural steel bearing piles are frequently used to support large buildings, we don't know whether anything is made which would be feasible or within reason from a cost standpoint for a frame garage. A call to a local office of Joseph T. Ryerson & Sons, Inc.; Ceco Steel Products Co.; Bethlehem Steel Co.; or U. S. Steel Supply Co. there in Chicago should serve to settle the possibility one way or the other.—Ed.

Needs Prompt Delivery

Sir:

I am trying to contact those concerns who are in position to build a large 400-ton high speed self-contained joggling and forming press, all steel "C" frame type. I have already been in contact with a number of the larger machinery manufacturers, but none of them are able to take on additional business for prompt delivery.

L. S. PECK
Portland, Ore.

The possibility of securing prompt delivery on a 400-ton C-frame hydraulic joggling and forming press is rather remote; it may be necessary to go a little farther afield than normally in the hope that some other press firms may have patterns and be able to take on the work. Perhaps some of our readers can offer suggestions??—Ed.

Special Tubing Required

Sir:

We have a recollection of seeing recently advertisements or notices of a company who constructs a multi-walled pipe by rolling a sheet and welding the outside. The process would seem to solve a problem we now have and we would like to get in touch with the manufacturer of such pipe. Can you supply the name?

G. C. WHEELER
Engineering Dept.
North American Philips Co., Inc.
Lewiston, Me.

Bundy Tubing Co., Detroit 14, Mich., manufactures a double-walled tube made from a single strip which is rolled and then welded.—Ed.

Prompt Service

Sir:

We wish to thank you for the very prompt attention given our wire request for copies of the article by D. I. Brown entitled "Cold Extrusion of Shells Saves Steel," in the Oct. 19, 1950 issue. The copies were received this morning. It is a very interesting article and several of our prospective customers requested copies of us.

G. D. MILLER
George D. Miller Co.
Cleveland

Timely Titanium Topic

Sir:

With the potentialities of titanium looming rather large on the metallurgical horizon, we wonder whether you would be good enough to inform us which domestic companies seem to hold the largest reserves of this material.

R. A. BING
Head of Research Dept.
Sutro & Co.
San Francisco

From recent reports, the Quebec Iron & Titanium Corp., 120 Broadway, New York, probably has access to the largest reserves of titanium ore in this hemisphere. There are no actual reserves of the metal and most production is currently going into research and development projects.—Ed.

Another *cost-saving advantage* for users of

B&W

MECHANICAL TUBING...

TAILOR-MADE FORMABILITY

TO SATISFY ANY FABRICATION AND END-USE REQUIREMENTS

You have a wide choice of B&W MECHANICAL TUBING

TYPES—Seamless (hot finished, cold drawn or rocked.) Welded (from hot or cold rolled strip.)
GRADES—Carbon, Alloy, and Stainless Steels.
SIZES—Up to 9-5/8" O. D. in full range of wall thicknesses.
QUALITY—Open-hearth and electric furnace steels, including aircraft and magnaflux qualities.
CONDITION—Unannealed, annealed, tempered, normalized, or otherwise heat-treated as required.
SURFACE FINISHES—As rolled, as drawn, as welded, flash removed, turned, scale-free, and polished.
SHAPES—Round, square, rectangular, oval, streamlined, and special shapes.
FABRICATION—Upsetting, expanding, bending, safe-ending, and machining.

Illustration shows part *hydraulically* formed to precision tolerances from B&W Welded Stainless Croloy 16-13-3 Tubing (type 316). Concentric ends have same diameter and wall thickness of original tubing. Ask your B&W Tube Representative about your tube forming problems. He may help you uncover economies in selecting, ordering and fabricating.

B&W SEAMLESS and WELDED TUBES

THE BABCOCK & WILCOX TUBE COMPANY
General Offices: Beaver Falls, Pa.
Plants: Alliance, Ohio, and Beaver Falls, Pa.
Sales Offices: Alliance, Ohio • Beaver Falls, Pa. • Boston 16, Mass. Chicago 3, Ill. • Cleveland 14, Ohio • Detroit 26, Mich. • Houston 2, Texas Los Angeles 15, Calif. • New York 16, N. Y. • Philadelphia 2, Pa. St. Louis 1, Mo. • San Francisco 3, Calif. • Syracuse 2, N. Y. Toronto, Ontario • Tulsa 3, Okla.

UNIVERSITY OF MICHIGAN LIBRARIES

for top precision

Production to close tolerances mostly applies to metal working. But the technique of Western Felt production and processing has built an enviable reputation for engineering precision.

Chemical specifications must be perfectly met—parts from wool softness to rock hardness are cut to close tolerances. As an extremely versatile material Western Felts are resilient, flexible, compressible. They resist oil, water, heat, age—do not ravel, fray or lose shape. New uses found daily. It pays to depend on Western Felt.

Check Possible Uses for Your Product

• Excluding dirt, grit, dust • Retaining lubricants • Thermostatic insulation • Isolating vibration • Cushioning shock • Padding, packing, seals • Air and liquid filters • Gaskets, channels, etc. • Grinding, polishing, etc. • Weight reduction • Instrument mounts

WESTERN Felt WORKS

4035-4117 Ogden Ave., Chicago 23, Illinois

Branch Offices in Principal Cities

Fatigue Cracks

by Charles T. Post

Brass Tacks

This matter of getting down to brass tacks seems a lot easier since reading our erudite British contemporary, *"The Metal Bulletin."* Probably no one but an upholsterer has very much direct contact with brass tacks, as such. Brass tacks have always been something you got down to. Having a certain amount of pride, a growing paunch, and a lazy disposition, we've never cottoned up to the idea of getting down to anything, let alone brass tacks. Much nicer to recline on a couch with water pipe and glass nearby, as seen above.

The *Metal Bulletin*, however, recently came across a volume entitled *"A Dictionary of Rhyming Slang."* "Brass tacks," it turns out, is merely rhyming slang for "the facts." You can get down to them without stooping, use the terms interchangeably.

Oh, yes. It seems that rhyming slang for pipe is "cherry-ripe." If you happen to have a few thousand feet of cherry-ripe in your warehouse, your f.f.j.'s editors assure us it would be a pipe to sell it profitably.

Shortages

After learning last week that the scrap shortage was resulting in a wave of thefts of unguarded machinery and equipment, we were astounded to learn that impending shortages were having their effect on other fields.

The police of Perth Amboy, N. J., have picked up a woman worker at the plant of the Maiden-Form Brassiere Co., charged her with smuggling out 8000 brassieres—"parts at a time," whatever that would be—and stashing them away in her basement.

Since no woman we know needs 8000 brassieres, we can only assume that the thief saw a chance to cash in on an impending shortage, with possibly a sideline selling to owners of 1951 Fords with sagging radiator grilles. It all goes to show you can't check your plant security too closely these days, no matter what you make.

Puzzlers

Not all the nation's mathematical brains are in its factories. Had there been a prize for the first answer to come in to last week's code problem, it would have gone to Jim Carlin, head proof reader at the printing plant. Before the page on which Fatigue Cracks appears, was even printed on both sides, he figured out that HOT has a numerical value of 357 and that STUFF can be expressed as 47266. We'd say that Jim is pretty 357 47266, himself.

E. J. Sampson, Robert W. Huff, and Howard Fancher correctly deduced that the ladder in the February 8 problem is 41.633 ft long, the street 40.414 ft wide, and the base of the ladder placed 11.547 ft from the base of the taller building. Reader Sampson, Robert A. Wallace, McDowell Manufacturing Co., and S. A. Kenorf of Crucible Steel's Park Works correctly probed the cork cover on the steel ball. John W. Higby, Madrid, Iowa, finally drilled through the 2-in. cube mentioned last November.

T. H. Rattray, purchasing agent, Engelke Engineering, Inc., has a circular military type wrist watch. The second hand measures exactly ½ in. from the pivot to the outside end of the hand. He wants to know how many land miles the outside end of the hand travels, in its normal circular motion, for the period of a normal year. Actually, he knows, and wants you to find out.

machine tool high spots

sales inquiries and production

by W.A.Lloyd

January Shipments Dip—The peak which some experts predicted the machine tool business would reach this year appears to be virtually at hand. According to informed sources, January order volume may have been the highest since July, 1942, indicating a preliminary order index of possibly 450, compared with an index of 410 in December.

It is believed shipments dipped in January, due chiefly to shortages of materials, indicating a preliminary index of 115, compared with an index of 135 in December. As a result, backlog or the ratio of unfilled orders to shipments has increased, possibly to 13 or 14 to 1.

Exports Taper Off—Big increase in new order volume is the result of domestic placements. Foreign demand, says the trade, is tapering off.

The estimated decrease in shipments is serious in view of the machine tool requirements of the defense program and the growing shortage of machine tools which now exists. Companies are enlarging their subcontract work, and one company indicated that within a few weeks an estimated 60,000 hours of subcontract work will be coming into the shop for assembly.

Plug and Ring Gages—In Washington, standardizing and cataloging of commercial type plug and ring gages has been announced by the Munitions Board, Dept. of Defense. The development of military standards and cataloging will reduce to about 187,000 catalog items the more than 1 million descriptions of plug and ring gages previously used.

First series of military standards covering plain plug and ring gages constituting one-half of the total items under development have been approved for publication.

Buys British Firm—In Chicago, Independent Pneumatic Tool Co. has acquired all the stock of Armstrong Whitworth Machine Tools, Ltd., Newcastle, one of Great Britain's biggest pneumatic tool builders. Neil C. Hurley, Jr., Pneumatic president, said the purchase will permit increasing standardization of British and American tools for arms production. One reason for the move was to enable his firm to acquire a stronger foothold in world markets, he said.

Problems Before NPA—One of the machine tool industry's key suppliers, the anti-friction bearing industry, placed its problems in expanding facilities and obtaining alloy steel before NPA officials this week. The Anti-Friction Bearing Manufacturers Advisory Committee outlined the industry's requirements for alloy steel, machine tools, machinery, plant floor space and related facilities.

NPA officials told the committee that as orders for bearings to meet the growing needs of the defense program continue to increase during the next 2 years, it will become necessary to make some adjustment with respect to civilian use unrelated to the rearmament program.

Tool and Die Barriers—Shortages of special types of steel and manpower are hampering the tool and die industry, the Tool and Die Manufacturers Advisory Committee told NPA officials in discussing problems confronting the industry in preparing plants for war work.

NPA officials advised the committee to submit specific information on cases in which undue difficulty is encountered in obtaining supplies, so that steps can be taken to correct the situation.

Shortages of journeymen tool and die makers is causing the industry plenty of concern and government assistance was requested to help find a solution.

UNIVERSITY OF MICHIGAN LIBRARIES

FREE *publications*

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just fill in and mail the postcard on the opposite page.

Current-Metering Manual

A new 40-p. manual of watthour meters comprehensively covers the fundamentals of alternating-current metering. Containing charts, diagrams and photos, the brochure shows how electricity is measured; describes operating principles of alternating-current watthour meters; and explains techniques involved in the use, testing and maintenance of meters. The brochure can be used as a reference in the meter schools of companies to show proper application and maintenance. *General Electric Co.*

For free copy insert No. 1 on postcard.

Fabrication Facts

"Beyond Your Blueprints" is the title of a new 16-p. illustrated catalog providing many useful facts regarding steel and alloy plate fabrication. It explains the many specialized techniques and services of this company in the fabrication of tanks and vessels for the petroleum and chemical processing industries. Another useful feature of the catalog is the extensive section devoted to corrosion data charts—which lists the resistance values of commonly used metals with reference to hundreds of chemicals. *Nooter Corp. Address requests to this column on company letterhead.*

Steam Capacity Chart

The new Mipco steam capacity chart provides means for determining steam capacity required from safety valves to give 100 pct protection in case of pressure-reducing valve failure. A typical example of a problem is given, with an explanation of how the chart is used for solution. *Marine & Industrial Products Co.*

For free copy insert No. 2 on postcard.

Two-Cycle Diesel Engines

The complete line of Series 71 2-cycle GM Diesel engines for application in the industrial, petroleum and marine fields is described in a new catalog. The book covers single and multiple engine units from 2 to 24 cylinders with power ranging from 32 continuous to 780 intermittent hp. It contains data on design and interchangeability of parts; a "Select Your Power" chart covering 57 standard power take-off and 7 torque converter models; engine illustrations and an outline of service facilities. *Detroit Diesel Engine Div., General Motors Corp. Address requests to this column on company letterhead.*

Self-Locking Nuts

Advantages of Greer self-locking nuts are presented in a new 8-p. stock and price list. Information on types, materials, dimensions and finishes for coarse and fine machine screw hex nuts, light and heavy weight nuts, and clinch nuts, is shown. Complete prices and discounts are listed. *Greer Stop Nut Co.*

For free copy insert No. 3 on postcard.

Rubber Compounds, Parts

A new 16-p. illustrated catalog lists by code number approx 30 compounds which are representative of more than 500 rubber stocks developed to meet special requirements. Full information is presented on compounds which feature resistance to abrasion, chemicals, high and low temperatures, petroleum products and their derivatives, and weathering. A special section deals with the recently-developed Silicone rubber compounds. *Stalwart Rubber Co.*

For free copy insert No. 4 on postcard.

Conveyer Chain Folder

A new 4-p. folder gives dimensions and pertinent data on S-815 flat-top conveyer chain and its cut tooth sprocket wheels — for the transportation of small containers, bottles, packages or parts through various operations. The bulletin shows how each pitch of chain consists of only a hinge type beveledged flat-top link, and a pin to hinge adjacent links to each other with an overlap, assuring a continuous, smooth carrying surface and smooth transfers. *Link-Belt Co.*

For free copy insert No. 5 on postcard.

For Drainage Problems

"An Economical Answer to Limited Headroom—Fast Runoff," is the title of a new, illustrated folder describing Armco Pipe-Arch and Multi-Plate Pipe-Arch, and shows why they carry more water than round pipe. Test data and case histories also show that they have more than sufficient strength to withstand both live and dead loads. The folder discusses erosion and corrosion problems and tells how to solve them. Tables give recommended sizes and gages to meet various loading conditions. *Armco Drainage & Metal Products, Inc.*

For free copy insert No. 6 on postcard.

Metal Corrosion-Proofing

Prufcoat metal reactive primer P-10, providing a simple 2-step system for corrosion-proofing old or moist metal surfaces, is described in a new technical bulletin detailing method of application and advantages. A question-and-answers section provides most of the necessary information about this new metal-treating formulation,

Turn to Page 103

NEW *production ideas*

new and improved production ideas, equipment, services and methods described here offer production economies . . . fill in and mail postcard.

Roll Temperature Unit

Measures temperature of moving roll surface without touching the roll.

Temperature detected by the unit is recorded automatically by either a Micromax or Speedomax instrument supplied as an integral part of the complete equipment. The recorder can be equipped to operate signals or controls. Applicable to roll diameters down to 9 in. and to flat surfaces, the new detecting unit operates independent of surface speed, emission characteristics, and finish. It can be mounted at the center of the roll or at any other location, wherever actual temperature measurement is desired. *Leeds & Northrup Co.*

For more data insert No. 20 on postcard.

Pivot Polishing Machine

Machine uses carbide or ceramic wheels for wet polishing pivots.

The Hauser Type 241 polishing machine will replace in many instances centerless grinding, it is claimed, and can be operated by unskilled labor. It polishes pivots straight, taper or radius and will polish shoulder at the same time as the cylinder at right angle or bevel. Mild steel, hardened steel, stainless steel, brass, nickel, bronze can be burnished. The machine takes work in collet or on centers. It is rated at 600 or more pivots per hr. *Hauser Machine Tool Corp.*

For more data insert No. 21 on postcard.

Tube, Pipe Fittings

Simplify installation and reduce pipe line costs.

Three principal fittings in corrosion-resistant alloys are an insert flange, an aligning connector and a tube and pipe union. The insert flange consists of a corrosion-resistant serrated insert in a carbon steel flange, requiring only an expanding tool and a plain wrench for working with it. It is made for standard tubing ODs and gages, and nominal pipe sizes from ½ to 6 in. The aligning connector is used in connecting standard heavy-wall pipe to light-wall pipe. Tubing OD and pipe sizes are ½ to 4 in. The tube and pipe union combines the best features of the screwed pipe union and the sanitary tube union, and is said to remove leakage problems often encountered with corrosion - resistant ground joints. *Horace T. Potts Co.*

For more data insert No. 22 on postcard.

Rubber-Fabric Belt

Will not slip, permits split-second timing, has up to 16,000 fpm speeds.

Known as the Gilmer Timing Belt, a rubber and fabric belt with teeth fulfills the need for a power drive that will not slip and permits split-second precision timing. It attains speeds up to 16,000 fpm and is said to operate more quietly than precision gears running in an oil bath. The new belt does not stretch and operates on fixed centers without takeup adjustments. Since it needs no initial tension it has high efficiency with low bearing pres-

use postcard below

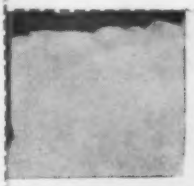
FIRST CLASS
PERMIT No. 36
(Sec. 34.9 P.L.&R.)
New York, N. Y.

BUSINESS REPLY CARD
No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

THE IRON AGE
100 E. 42nd St.
NEW YORK 17, N. Y.

tributor or write Westinghouse Electric Corporation, Dept. DC-32, Welding Division, Buffalo, N. Y.
J-21609



YOU CAN BE SURE.. IF IT'S
Westinghouse
Rectifier Welders

UNIVERSITY OF MICHIGAN LIBRARIES

INDUSTRIAL BRIEFS

CENTURY MARK — The E. HORTON & SON CO., Windsor Locks, Conn., in the lathe chuck industry, is now in its 100th year of operation.

"NOT LEGAL" — The pending merger of the PERFECT CIRCLE CORP. and THOMPSON PRODUCTS, INC., Hagerstown, Ind., will not be completed. The Department of Justice advised that the merger would be in violation of the anti-trust law and it would institute litigation if merger were put through.

SOLE U. S. REP.—KALEX CORP., N. Y., are the exclusive distributors in the U. S. for Cary of Switzerland, makers of high precision gages.

NEW LOCATION — The plant of EMPIRE SOLVENTS, INC., has moved to Clifton, N. J. Their general offices and laboratory are located in N. Y.

UNDER CONSTRUCTION — Construction has begun on the new office and warehouse building being erected for PETER A. FRASSE & CO., INC., Syracuse, N. Y. The building will permit the consolidation of the entire Frasse Syracuse operation under one roof.

OPEN HOUSE—BEALS, McCARTHY & ROGERS, INC., marked their 125th anniversary with a 3-day open house celebration at their new office-warehouse in Buffalo. During the 125 years of existence the firm outgrew its quarters eight times.

PATENT RIGHTS—Patent and manufacturing rights for the Tromp Heavy Density Coal Cleaning System have been acquired for the Western Hemisphere by McNALLY PITTSBURGH MFG. CORP., Pittsburgh. The Tromp system is widely used in England, France and Holland for the cleaning of the low-gravity and high-gravity coals.

NEW HIGH—The net earnings of the PENNSYLVANIA SALT MFG. CO., Philadelphia, after taxes, for 1950, were the highest in the company's 100 years. These earnings were 49 pct higher than profits earned in 1949 and 118 pct more than the average annual profit for the preceding decade.

ASSN. SECRETARY — Robert T. Griebling will serve as executive secretary of the AIR POLLUTION & SMOKE PREVENTION ASSN. OF AMERICA, INC. The headquarters of the association will move from Chicago to Pittsburgh and will be housed in Mellon Institute.

SIGNAL EQUIPMENT — LEWYT CORP., Brooklyn, has been awarded a $4,500,000 contract by the U. S. Army Signal Corps., to manufacture communication equipment.

AMERICAN AGENT — Exclusive representation for the Pouplier Steel Mills, Hagen-Kabel, Germany, has been given the NEW AMSTERDAM IMPORT CO., New York. The Pouplier Mills have increased their capacity.

TENTATIVE CONTRACT — BROWN & ROOT, INC., Houston engineering and construction firm is the lowest bidder on the general contract covering erection of Lone Star Steel company's $73.5 million integrated steel mill to be built at the E. Texas works. A formal contract is awaiting approval by directors and RFC officials.

ACROSS THE RIVER—Transfer of the sales and manufacturing facilities of the S. G. FRANTZ CO., INC., from New York to Trenton, N. J., has been completed. The new plant provides ample space for sales and administrative offices, as well as a large area for manufacturing operations.

or parts could be quickly converted to revolving bands if the word is given. Production rates for these presses are very high.

But the most compelling reason for switching from copper to iron powder is the availability of material. The outlook for substantially increasing supplies of copper is bleak. But raw materials for iron powder are abundant.

Plenty of Raw Materials

While most domestic iron powder is made from mill scale, it can also be made from high grade iron ore or steel scrap. During the last war the Germans made it from chopped wire and scrap, as well as sponge iron.

Last year domestic iron powder producers shipped 4125 net tons of powder. During the same period we imported 6000 tons from Sweden. Domestic capacity is being expanded, but not by the leaps and bounds that will be necessary if Ordnance adopts iron powder widely in revolving bands and bullets. The switch is not expected to be made overnight.

NPA to Aid Diesel Engine Industry

Washington—A plan by which the National Production Authority will help the diesel engine industry obtain material for production is being worked out. However, the industry has been told to expect production in the near future to be limited to highly essential uses.

Inco of Canada Chairman Dies

New York—Robert Crooks Stanley, 74, chairman of the board and former president of International Nickel Co. of Canada, Ltd., died here this week. Mr. Stanley was noted for discovering Monel metal and held several patents on processing and refining of metals. He studied engineering at Stevens Institute of Technology and Columbia School of Mines and was a metallurgist since 1901, when he joined Oxford Copper Co. After being made a director of International in 1917, he was named president in 1922.

U.S. Shipbuilding Program Starts With Awards to 5 Yards

First of 25 ships to be delivered in 480 days . . . Cost $8 million each.

Washington — The first large scale government shipbuilding program since World War II has been set in motion with award of 25 Mariner ship contracts to five shipyards at a cost of approximately $8 million per ship.

Congress appropriated $350 million for the new ships last month and bids invited from shipyards on Jan. 10 were opened Jan. 31. Of 11 yards responding, the following were accepted: Newport News Shipbuilding & Dry Dock Co., Newport News, Va.; Ingalls Shipbuilding Corp., Pascagoula, Miss.; Bethlehem Steel Co., Sparrows Point, Md.; Bethlehem Steel Co., Quincy, Mass.; Sun Shipbuilding & Dry Dock Corp., Chester, Pa.

At prices awarded, higher cost yards will probably receive less profit per ship than lower cost yards, the Maritime Administration reported. Contracts call for delivery of the first ship from Newport News and Bethlehem-Quincy in 480 days, with other deliveries up to 730 days.

R-108 Prolongs Life of Steel

Pittsfield — Development of R-108, an ingredient to give improved alkali and acid resistance to paints, has been announced by the Chemicals Div. of General Elec. Used on steel, the coating conserves expensive and hard-to-get alloys, GE claims. Steel drum life can be extended, and experiments are being made with R-108 to replace tin used in food containers.

B & O Ore Pier Ready in April

Baltimore—Foreign ore shipments from Liberia and Venezuela can be handled here soon after completion in April of the Baltimore & Ohio Railroad's new $5 million ore pier at Curtis Bay.

Two Dravo ore unloading machines will be able to unload a ship in 24 hours, handling from 1000 to 1500 tons an hour. First of its kind on the Eastern seaboard, the pier will be expanded to accommodate two ships simultaneously as soon as the flow of ore justifies it.

OPS Studies Formula Prices For Nonferrous Foundry Industry

Washington — Formula price-control for the nonferrous foundry industries is being studied by the Office of Price Stabilization.

Nonferrous foundry representatives last week urged OPS to permit the industry to continue using individual company formulas under any price regulation the government may issue.

OPS was told the multiplicity of foundries and wide diversity of production make formula pricing "inescapable" in the affected industries.

Foundry representatives requested the order be issued as soon as possible to remove the industry from provisions of the current general price regulation.

NMTA Urges Industry Restudy Employment Practices for Women

Job breakdown, control redesign suggested . . . Training needed.

Chicago—With the number of women in industry showing a sharp upward turn, and still the nation's biggest reservoir of untapped labor, the National Metal Trades Assn. urges manufacturers to review employment and shop practices in light of World War II experience.

Job breakdowns, redesign of operating controls and safety devices to accommodate women's smaller stature, and revision of material handling facilities will enable women to attain greater production levels.

Recruiting in the 25 to 35 year age group may be complicated by lack of child care facilities since there are relatively more women with young children than before the last war.

While many states relaxed laws governing employment of women during World War II, NMTA recommends review of state and federal laws on lifting loads, hours,

Defense Contracts to Metalworking Industry

Selected Contracts, Week of Feb. 12, 1951

Item	Quan.	Value	Company
Aircraft engines	136	$1,224,000	Capitol Airlines Nat'l Airport, Washington, D. C.
Automatic pilot comp's.	...	1,969,611	Sperry Gyroscope Co., Great Neck, N. Y.
Propeller assemblies	...	984,872	Curtis-Wright Corp., Caldwell, N. J.
Carburetor parts	...	875,378	Bendix Products Div., South Bend
Aircraft parts	...	4,271,273	North American Aviation, Los Angeles
Aircraft generators	...	1,146,014	General Electric Co., Dayton
Wheel & brake assemblies	...	1,279,000	Bendix Products Div., South Bend
Radios	2266	2,000,000	Radio Corp. of America, Camden, N. J.
Aircraft Comp'ts	...	14,000,000	Lockheed Aircraft Corp., Burbank, Calif.
Trucks	483	892,659	General Motors Corp., Detroit
Trucks	4500	12,380,000	Studebaker Corp., South Bend
Trucks	320	379,046	Chevrolet Motor Corp., Detroit
Carburetors	90,000	602,500	Lally's Des Moines, Iowa
Trucks	3050	8,000,000	International Harvester Co., Chicago
Trucks, gas tanks	4173	11,557,528	Reo Motors Inc., Lansing, Mich.
Trucks	595	3,090,446	Federal Motor Truck Co., Detroit
Motors	489	35,000,000	Cadillac Mtr. Car Div., Detroit
Buses	1772	7,255,954	Ford Motor Co., Washington, D. C.
Automobiles	164	229,591	Buick Motor Div., Detroit
Trucks	10,298	18,515,441	Ford Motor Co., Washington, D. C.
Trucks	5030	5,734,738	Ford Motor Co., Washington, D. C.
Trucks	536	834,713	Chevrolet Motor Div., Detroit
Mobile bakery	58	560,277	American Machine & Foundry Co.
Direction finder	46	800,000	Stewart Warner Corp., Chicago
Prototype Diesels	6	1,000,000	Continental Aviation & Eng., Detroit
Energizers	200	520,000	General Electric Co., Washington
Motor parts	29,188	478,768	ACF Brill Mtrs. Co., Philadelphia
Crane shovels	30	1,000,000	Bay City Shovel, Inc., Bay City, Mich.
Road rollers	150	600,000	Calion Iron Wks., Calion, Ohio
Parts	...	600,000	Thew Shovel, Lorain, Ohio
Construction equip	11	450,304	Pioneer Eng. Works, Inc., Minneapolis
Bomb components	20,000	4,690,410	Griffin Mfg. Co., Dallas
Sights	...	500,000	Argus, Inc., Ann Arbor, Mich.
Air compressors	125	800,000	Joy Mfg. Co., Chicago
Air compressors	175	1,000,000	Davey Compressor, Kent, Ohio

pay, machinery and safety measures.

NMTA recommends simple attire and proper hair control to prevent accidents. Since women usually lack the mechanical background of men, NMTA suggests special training, and urges that supervisers be briefed to cope with different emotional reactions.

U. S. Scrambles for Metals ECA Gives Europe

Congressional ire grows as copper, lead, zinc, aluminum shipments under Marshall Plan reach $605 million in past 9 months . . . Favor joint defense approvals—*By Karl Rannells.*

Washington—Increasing criticism is being leveled at continued Marshall Plan buying of strategic materials from American stocks and sources, especially when domestic controls are being drawn steadily tighter.

Total purchase authorizations for four of the more critical metals is given in the Economic Cooperation Administration's year-end report as $605 million. This is for the period from April 1948 through December 1950.

While a majority in Congress view the Marshall Plan as an economic necessity, there is a growing feeling that there should be a closer screening of Marshall Plan demands. And there is increasing support for the belief held by Sen. McCarran, Sen. Wherry, R., Nebr.; Rep. Reed, R., N. Y.; Rep. Rees, R., Kans., and others, that shipments of strategic materials from this country should be approved only when necessary for joint defense.

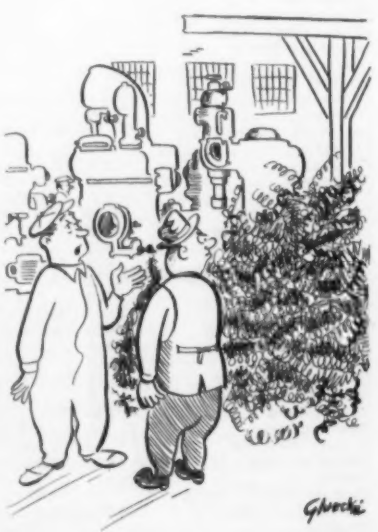
U. S. Supplies Third of Total

But best available figures indicate that to date the totals within ECA's stated period approach nearer $625 million. Roughly broken down, this amounts to about $350 million worth of copper and copper products; $130 million worth of aluminum; $85 million in zinc and its products; and about $60 million worth of lead and its products.

Actual deliveries, of course, lag somewhat behind the purchase approvals. Nevertheless, ECA reports through November showed that paid shipments of these metals were running at about 80 pct of total authorizations. Roughly a third was being shipped from the United States.

A substantial portion of these total authorizations was approved prior to the setting up of the National Production Authority—and thus is water over the dam. However, great concern is being created because purchase approvals have slowed down but little since NPA began slapping controls and restrictions on domestic supplies, use and distribution.

As an illustration, in addition to $8 million worth of aluminum some $17 million worth of copper and its products were authorized by the ECA during the first 2 months of control—November and December. A third of the copper was to be bought in the United States and the total just about equals the current stockpiling buying rate.



"That isn't all scrap—my machine is under there somewhere."

Moreover, ECA announced in mid-January that it had authorized Germany to buy some $2 million worth of copper and copper products from the United States. A few days later it authorized a similar purchase by the Dutch which amounted to roughly $367,000.

These approvals were announced 2 and 3 weeks after NPA had issued its amendment to the original copper cutback order (M-12) which barred use of copper in manufacture of more than 300 end items. Similar restrictions have been placed on aluminum, nickel and tin.

Restrictions Run Wide Range

What is making it bad from all viewpoints is that the prohibited lists are not confined to strictly non-essential articles. They also apply to various types of tools, building materials, hardware and so on.

"It is manifestly unjust to allow the export of such materials if they are to be used in Europe for purposes which are prohibited here at home," Sen. McCarran, D., Neb., declared on the Senate floor recently.

Neither business nor labor understand why the government continues to follow two apparently conflicting policies—strict domestic conservation with one hand and distribution abroad with the other. They say it will bring production cutbacks and unemployment.

Japanese Copper to Europe

Nor do they understand why between 15,000 and 20,000 tons of Japanese copper was permitted to be sent to Europe and the Far East over a 21-month period while copper was short here.

The ECA takes the position that Marshall Plan nations need such raw materials in order to keep factories going and to keep from being a greater burden to this country.

It explains the Japanese shipments by saying this "enables the United States to use more of its own production for defense mobilization."

Woodward Expansion Adds To Coking, By-products Facilities

Raises to 154 number of new ovens announced in area in past 5 months.

Birmingham—A new $4 million expansion program has been announced by Bradford G. Colcord, president of Woodward Iron Co. Construction will start at once.

Major item is 30 additional coke ovens with a capacity of 115,000 net tons annually. It will bring to 154 the total of new coke ovens announced for the Birmingham area in the past 5 months and will increase annual coke production approximately 600,000 tons.

Others that have announced plans for new coke ovens and on which work actually has started are: Republic Steel Corp., 65 new ovens; Sloss-Sheffield Steel & Iron Co., 30, and Alabama By-Products Co., 29.

At present Woodward has 226 coke ovens producing some 850,000 tons annually.

Includes By-Products Facilities

The Woodward program also calls for additional coal and coke handling facilities for increased production of coal chemical by-products, including ammonium sulphate, coal tar, benzene, xylene, toluene, napthalene and pyridine.

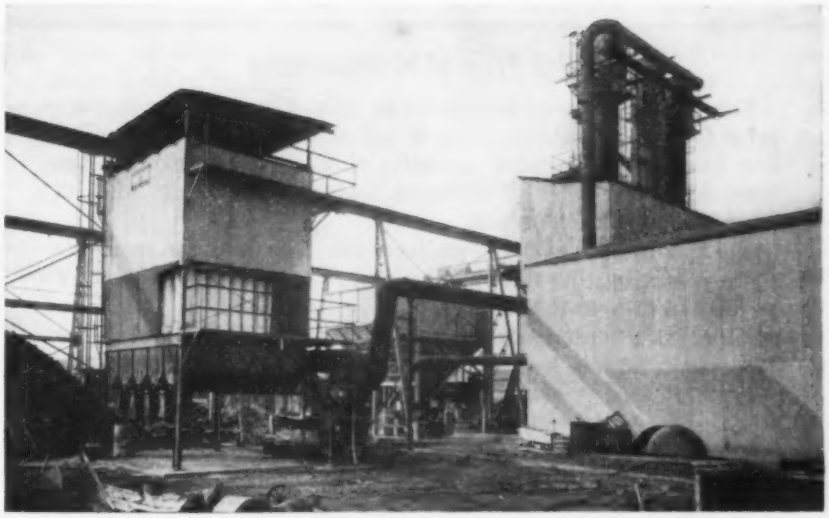
The company is constructing a new $4½ million blast furnace to produce about 237,250 gross tons of pig iron a year. Later it plans to add steam and power equipment and transportation facilities.

Income More Than Doubled

Chicago—A. M. Castle & Co., Chicago steel distributors, report a net 1950 income of $1,319,789 as compared with $539,775 for 1949. Net sales of the company for 1950 came to $18,709,876.

ASIE Honors Westinghouse

New York—Westinghouse Electric Corp. has been given the Merit Award of the American Society of Industrial Engineers for leadership in research, engineering, design and manufacture in the home laundry field.



ANTI-SMOG EQUIPMENT: General Metals Corp. iron plant at Vernon, Calif., has a new weapon against smog in Los Angeles area. It is a Whiting Corp. five section Bag Type Dust Suppressor serving two No. 4 cupolas. Shown at upper right are cupolas with conditioning chambers attached to upper stacks. All gases and remaining dust, fumes, and smoke are channelled to the dust suppressor (left) for final cleaning. The tough Los Angeles County Air Pollution Control District has approved the installation.

Pittsburgh Coal Builds Coal Pipeline for Surface Mining Site

Pittsburgh — Transportation of coal by pipeline is here.

Pittsburgh Consolidated Coal Co. is building a 3-mile coal pipeline system near Cadiz, Ohio, at the Georgetown surface mining operation of the Hanna Coal Co. Div. The project is expected to be in operation this summer.

Experiments by Pitt-Consol at a small pilot operation at Library, Pa., apparently convinced the company that pipeline movement of coal is feasible. The $550,000 demonstration-size line is expected to show up any bugs that still must be worked out.

Coal will be pumped through the 12-in. pipeline in the form of a coal-water "slurry." At the other end of the line the coal will be drained and dried. It was believed that fine coal for power plant use and perhaps stoker size coal could be transported in this manner.

After crushing, the coal will be washed and mixed with water to form a slurry. Special pumps have been designed to push this mixture through the line under pressure. The company expects to pump several thousand tons of coal per day through the line.

U.S. Okays Green River Steel Loan; Considers North American

Washington—Green River Steel Corp. last week received a government loan for $8,356,000 for construction of an electric furnace at Owensboro, Ky., and government officials this week met to consider application by North American Steel Co., of Clinton, Iowa, on request for a $100 million steel mill loan.

The two loans covering construction of the Owensboro plant will bring an additional 189,000 tons of ingot capacity annually. The plant will employ from 800 to 1000. Operations are expected to begin within a year. The corporation has an option on a 127-acre site in a coal reserve.

North American Steel Co. plans to make 1 million tons of finished steel annually, plus 400,000 tons of pig iron. To be built on the Mississippi River, south of Clinton, at Comanche, Ia., the new plant will produce sheet, bar, and slat steel.

Robinson Gets Ordnance Post

Cincinnati—Harry S. Robinson, retired general manager and treasurer of the Cincinnati Shaper Co., has been named chief of the Cincinnati Ordnance District.

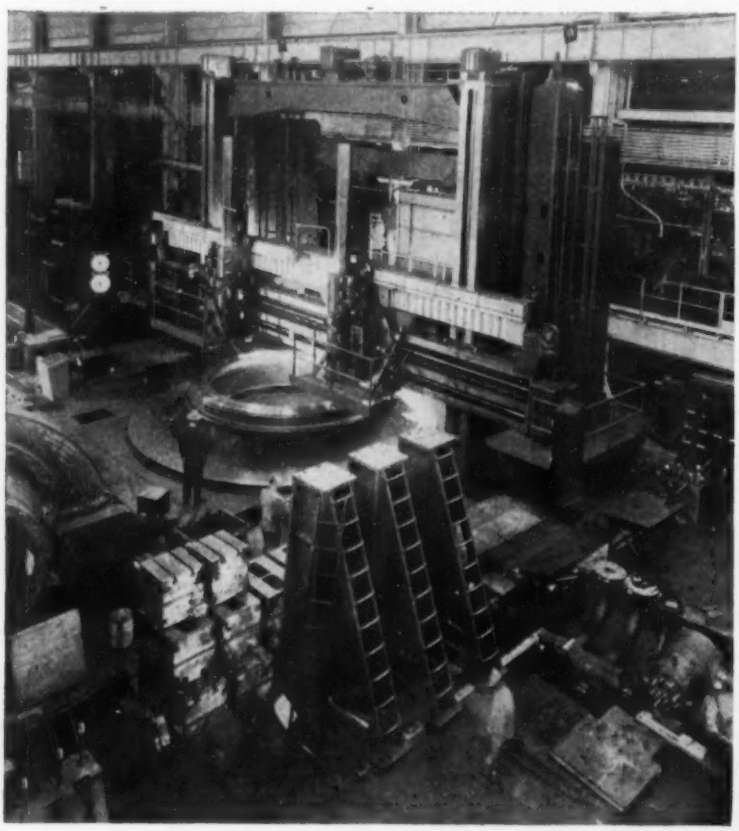
High Price of Mechanization

Milwaukee, Wis.—Allis-Chalmers Mfg. Co. has paid a high price for mechanization. This is not as dire as it sounds. The firm has bought its most expensive single machine tool for the West Allis Works—a 30 ft heavy boring and turning mill, its second largest machine tool.

A Lima-Hamilton Corp. product, the new mill can machine single pieces up to 30 ft, 5 in. diam and 17 ft high. Supplementing production of a 40-ft boring mill, largest in the shops, the 30-in. mill increases capacity for manufacture of large generators, condensers, steam and hydraulic turbines.

It weighs about 500 tons and is 48 ft tall, 37 ft of which is over the floor line, and is 59 ft wide, with a depth of 29 ft. The mill has an elevating type crossrail on which are mounted two swivelling rail heads with 14-in. octagonal boring bars about 18 ft in length.

Push button control from four stations operate 36 motors. Shown in the photograph on the mill's table is a bottom guide vane for a hydraulic turbine.



Koppers Co. Reports Earnings

Pittsburgh—Koppers Co., Inc., reports net income of $11,615,498 during 1950 compared with $7,111,997 in 1949. Sales and receipts in 1950 were $213,791,687 compared with $192,314,685 in 1949.

Study U.S. Coal Mining Methods

London — A 16-man English team will study the American coal mining industry from top to bottom in a program sponsored by the ECA. The group, which sailed for the U. S. last week, will visit a dozen bituminous coal fields.

More Non-Defense Steel Cuts To Hit Industry Apr. 1, NPA Says

Further cuts in aluminum and copper planned . . . Blow to auto production

Washington — Further limitations on non-defense use of steel were in the final draft stage this week. The new order will cut back steel use for durable goods on an industry-by-industry basis.

It is scheduled to become effective Apr. 1. A National Production Authority official said the method was selected as a preferable alternative to imposing end-use restricting as in the case of aluminum and copper. NPA feels manufacturing industries are in best position to determine where steel allotments can be used to best advantage.

No Cut for Auto Parts

Further limitations on aluminum and copper uses were also being completed. The three orders will hit the automotive industry hard. Some estimates are production will have to be cut back 50 pct instead of the expected 25-30 pct.

However, officials said it is not planned at present to apply the steel cut-back to the automotive parts industry. They indicated production would probably be allowed at 100 pct of the average rate during first half 1950.

Steel Firms Move Mountains And Reroute Rivers for Expansion

New York—Steel companies will move mountains of ore, reroute rivers, move cemeteries in their concerted push for vast steel expansion.

A river will be set on another course so that one steel firm can get room for a new mill building. Another company will gingerly move the contents of two cemeteries for expansion land. This involves shifting 250 graves and headstones, reported the American Iron and Steel Institute.

One firm plans to insert a large section in the middle of one of its

ore vessels so the ship can haul more ore. Houses were moved wholesale by two firms. One of them moved 100.

Now under construction is a 360-mile railroad to connect Labrador-Quebec ore fields. Other big construction projects are going on in foreign lands to provide ore for steel capacity that will be over 120 million tons by the end of 1952.

Dual Tin Coat May Alter Production, Pricing

Right now it means tin savings . . . May cause revision of tin cut order . . . Weirton offers tinplate now . . . Its Halogen process readily adaptible to dual coatings—*By John Delaney.*

Pittsburgh—The dual coatings electrolytic tinplate process developed by Weirton Steel Co. could have important effects on the producing methods and pricing policies of the industry.

Of more immediate importance, the process will help conserve tin. Weirton estimates that tin metal savings will be between 25 and 30 pct. The company's announcement stated also that the process may enable the government to revise recently-announced restrictions on tin consumption and end uses of tin mill products. Weirton already is offering the new tinplate to its customers.

Unequal Tin Coatings

The dual coatings process means that a coating of sufficient weight to protect the contents of a can may be deposited on one side of the plate, with just enough for appearance and protection against corrosion on the other. Before the Weirton development, the industry-wide practice was to apply the same coating weight on both sides.

The Halogen process, used by Weirton, electrolytically coats each side of the plate individually, and is readily adaptable to dual coating. This same type line is operated by Republic Steel Corp. and is being currently installed by Jones & Laughlin Steel Corp. at its Aliquippa plant. However, all other lines in the industry coat both sides simultaneously. Whether they can be adapted economically to dual coating is a problem now under study.

Since the new process requires less tin, electrolytic tinplate prices could eventually be revised to reflect this saving, although this is not an immediate probability in view of recent advances in the price of pig tin.

Revise Basis Box Weights

One immediate effect was the revision by Weirton of six standard basis box weights of tinplate, revealing that the company now is producing 1.00 lb electrolytic as a substitute for 1.25 lb hot dip, in itself a tin conservation measure which most consumers of 1.25 and 1.50 lb hot dip had anticipated. (THE IRON AGE, Jan. 11, '51, p. 77.)

For example, the former 1.25 lb basis weight hot dip is now produced by Weirton with 1.00 lb for the interior of the can and 0.25 lb for the exterior—a saving of 50 pct in tin. It also means an increase of 100 pct in surface coverage with the same quantity of tin.

In the former 0.50 lb basis weight the saving on tin is 25 pct and the increase in area covered is 33.3 pct. The former 0.75 lb basis weight shows a saving of 33.3 pct with an increase in area of 50 pct.

"Yoo Hoo, Boss—I'm back from the lavatory—."

Exports Mean Hardship

Some mills believe that Government restrictions on end use are not sufficient to balance the reduction in the amount of tin they are permitted to consume. Any export allocation orders that may be given the industry could impose a real hardship on both producers and consumers.

Worrying some producers is the effect government restrictions will have on electrolytic operations. Their problem revolves around the necessity of satisfying hot dip requirements for perishable packs at home and abroad. Electrolytic operations will suffer in proportion to the amount of hot dip required. This would penalize electrolytic operations, and make it more difficult to hold trained electrolytic line workers.

Production of black plate is expected to be increased at the expense of electrolytic because coffee, oil and shortening have already been put on black plate.

The industry also expects that some producers will be asked to make chemically or electro-chemically treated black plate for ends of processed food cans. This will mean either the installation of new equipment or the conversion of some electrolytic lines.

USAF Div. to Open Bottlenecks

Dayton, Ohio—To open the bottlenecks for firms working on Air Force Contracts, USAF will expand its Industrial Planning Div. and give it the new name of Production Resources Div., more in keeping with its added duties. Industrial planning work will continue by a separate group under the new division.

The new agency will attempt to aid manufacturers fill manpower needs and locate scarce metals and materials to complete Air Force contracts. Headquarters will be at the Wright-Patterson Air Force Base here.

CONTROLS *digest*

For more details see "You and Government Controls," The Iron Age, Jan. 4, 1951, p. 365. For full text of NPA regulations write U. S. Dept. of Commerce, Division of Printing Service, Room 6225 Commerce Bldg., Washington 25, D. C.

Subject	Order	Effective Date
General		
Inventory Control	NPA Reg. 1	Sept. 18
	Interpretation 1, 2, 3	Nov. 10
Priorities System	NPA Reg. 2	Oct. 3
DO Rating	Amend. 1	Oct. 3
DO Rating	Amend. 2	Dec. 29
DO Ratings	Delegation 1, 2, 3, 4	Nov. 1, 2, 3
Priorities (Canada)	NPA Reg. 3	Nov. 8
Hoarding	NPA Notice 1	Dec. 27
Auto Prices, Wages	ESA Reg. 1	Dec. 18
Ceiling Price Regulation	CPR 1	Jan. 26
Military supplies	Supplement 1	Feb. 1
Wage Increases	CPR 2	Feb. 9
Coal Prices	CPR 3	Feb. 1
Metals		
Aluminum distribution	NPA M 5	Oct. 27
Aluminum cutback	NPA M 7 (amended)	Feb 1
	Direction 1	Nov. 28
	Direction 2	Dec. 16
	Direction 3	Dec. 27
Aluminum scrap	NPA M 22	Mar. 1
Cadmium	NPA M 19	Jan. 1
Cobalt stocks	NPA M 10 (amended)	Dec. 30
Collapsible tubes	NPA M 27	Jan. 27
Columbium steels	NPA M 3	Oct. 19
Copper distribution	NPA M 11	Nov. 29
Copper use	NPA M 12 (amended)	Dec. 30
Copper readjustment	M-12 Direction 1	Feb. 1
Copper scrap	NPA M 16 (amended)	Jan. 1
Molybdenum cutback	NPA M 33 (amended)	Feb. 2
Nickel cutback	NPA M 14 (amended)	Feb. 1
Ores, metals	NPA Del. 5	Dec. 18
Steel	NPA M 1 (amended)	Jan. 22
Freight car program	Supl. 1	Oct. 26
Great Lakes ships	Supl. 2	Nov. 15
Canadian freight cars	Supl. 3	Dec. 15
Steel scrap	NPA M 20 (amended)	Jan. 29
Steel warehouses	NPA M 6 (amended)	Nov. 15
Tin inventories	NPA M 8	Jan. 9
Tinplate, terneplate	NPA M 24	Jan. 27
Metal cans	NPA M 25	Jan. 27
Tinplate closures	NPA M 27	Jan. 27
Tungsten	NPA M 30	Jan. 22
Zinc distribution	NPA M 9	Nov. 16
Zinc cutback	NPA M 15	Jan. 15
Miscellaneous		
Chemicals	NPA M 32	Jan. 23
Construction	NPA M 4	Oct. 27
	Amend. 1	Oct. 13
	Amend. 2	Nov. 15
Elec. components	NPA M 17	Oct. 18
Iron, Steel Scrap Prices	OPS	Feb. 7

Industry Controls This Week:

NPA Orders

M-14, Nickel use, as amended—Makers of Nickel alloy may not extend priority ratings to replace nickel used before Jan 1 stainless steel and high nickel content materials. Effective Feb. 1.

Seek Electronics Priorities

Washington—The Assn. of Electronic Parts and Equipment Mfrs. will present to NPA a resolution to obtain critical materials for fabrication of maintenance, repair and operating supplies for their industry, reports Kenneth C. Prince, mobilization committee. The plan will suggest a priority system.

Add 2396 Locomotives in 1950

Washington—Class I railroads put 2396 new locomotives in service during 1950, more than in any other year in the past 27 years, according to the Assn. of American Railroads. Of these, 2372 were diesel, 12 steam and 12 electric. New locomotives in 1949 totaled 1865, of which 1808 were diesels.

L&N Orders 5200 Freight Cars

Birmingham—The largest single order ever given the Pullman-Standard Car Mfg. Co. here, 5200 freight cars, was placed by Louisville & Nashville Railroad. The order is worth $27.5 million.

Ben Fairless Wants Termite Control Against Red Saboteurs

New York—Benjamin Fairless, president of U. S. Steel Corp., warned against the invisible Red army of trained termites who could bore from within to undermine American productive capacity—most feared by Moscow. He spoke at rites awarding him the Sales Executives Club Applause Award for outstanding salesmanship and public service at the Roosevelt Hotel here last week.

Armco's Hook Also Speaks

Also on the speaker's rostrum, Charles R. Hook, Armco Steel Corp. president, spoke against government financing of mills proposed by "certain groups who wanted to get into the steel business on a shoestring." He said that he was not eager to "run a race with a competitor who has little to lose because he is being financed by the American taxpayer."

Tactics of the trained termites, said Mr. Fairless, will be to attack management through the labor press and create strikes. They will also strive to play economic group against economic group and plot against public confidence in big business, he continued. Mr. Fairless advocated "Termite Control" by teamwork, knowledge of each other's problems by industry and government, and passing information to the public.

Plan Steel Mill in Virginia

Washington—Present fast tax writeoff provisions may give a real push to the regional steel mill for a local market. Another plan that may fit the pattern was disclosed here with Tidewater Industries, Inc., application for a certificate of necessity. The mill would be located in the James River basin, east of Richmond, Va.

Tidewater obtained a charter from the Virginia State Corp. Commission and it is said that the mill would use ore from South America and southwest Virginia coal and limestone.

Republic Metallurgical Service

helps leading bearing producer save 30% IN HEAT TREATMENT COSTS

When you can take a top-quality precision bearing, improve the quality still further—*and cut production costs in the process*—there's sure to be an interesting story involved.

In this case, it's the story of many months of close cooperation between the metallurgical staffs of a leading roller-bearing producer and Republic Steel. It's a story that may be summarized like this:

Having determined that no appreciable advantages could be obtained from a change in alloy steel analyses, Republic's Field Metallurgist recommended a change in heat treatment cycle. The change was made. After a thorough testing period, the following benefits were noted:

1. **Furnace time required for carburizing—substantially reduced.**
2. **Re-heat treat—almost completely eliminated.**
3. **Parts distortion resulting from heat treat—also reduced.**

As a result, overall heat treatment costs were reduced by approximately 30% . . . grinding time of carburized parts was effectively lessened . . . bearing quality was further improved.

Perhaps you, too, are using the *right* analysis of alloy steel, but could profit through more efficient processing of that steel.

Republic—world's largest producer of alloy and stainless steels—offers you the *confidential* services of its 3-Dimensional Metallurgical Service without cost or obligation. Write, wire or phone.

REPUBLIC STEEL CORPORATION

Alloy Steel Division • Massillon, Ohio

GENERAL OFFICES • CLEVELAND 1, OHIO

Export Dept.: Chrysler Bldg., New York 17, N.Y.

"HOW ABOUT SECURITY?"

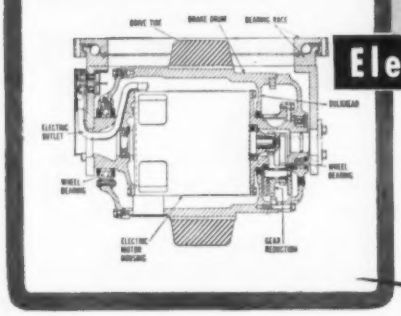
Labor has security. The farmer has security. But what about business, the third partner in today's economy? Shouldn't it have security, too? Read what Peter R. Levin has to say on this subject in "What Kind of Security for Business?" We'll send you reprints—if you'll write us.

Republic REPUBLIC STEEL ALLOY STEELS

Other Republic Products Include Carbon and Stainless Steels—Sheets, Strip, Plates, Pipe, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

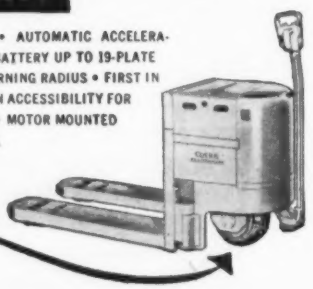
Give
MORE Power to Manpower
use CLARK powered HAND TRUCKS

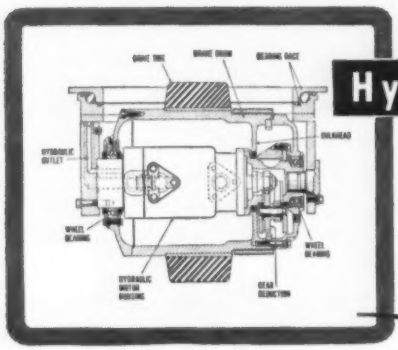
ONE BASIC DESIGN
TWO POWER TYPES



Electro-lift

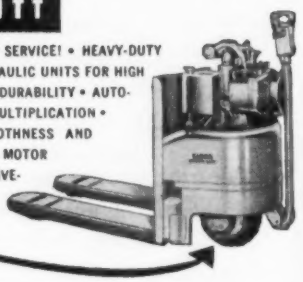
MORE POWER! • AUTOMATIC ACCELERATION • TAKES BATTERY UP TO 19-PLATE • SHORTEST TURNING RADIUS • FIRST IN GRADABILITY, IN ACCESSIBILITY FOR MAINTENANCE • MOTOR MOUNTED IN DRIVE-WHEEL





Hydro-lift

• 24-HOUR RAMP SERVICE! • HEAVY-DUTY VANE-TYPE HYDRAULIC UNITS FOR HIGH EFFICIENCY AND DURABILITY • AUTOMATIC TORQUE MULTIPLICATION • TOPS FOR SMOOTHNESS AND EASY CONTROL • MOTOR MOUNTED IN DRIVE-WHEEL



There's A SURE WAY TO GIVE MORE POWER TO MANPOWER!—Simply install Clark Powered Hand Trucks. You multiply many times over the amount of work a man alone can do. The men are better satisfied, too—and they're worth more to themselves as well as to you. Production is boosted, accidents and injuries are decreased, employee relations are improved, economy is strengthened.

Rich returns in time and money available to you in these revolutionary new materials-handling machines—

✓ *Be sure to see the* **CLARK EXHIBITS** *at the 4th National Materials Handling Exposition, Chicago, April 30-May 4, 1951.*

More power for your manpower can start with our Hand Truck Book. We'll be glad to send you a copy on request.

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS
AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 51, MICHIGAN
Please send: ☐ Powered Hand Truck Book ☐ Condensed Catalog
Name _____
Firm Name _____
Street _____
City _____ Zone ____ State _____

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

PA's Report Delivery Slowup, Price Hikes on Supplies Received

Chicago—The January report of the business survey committee of the Purchasing Agents Assn. of Chicago reveals that 70 pct of members reported suppliers' deliveries are slowing down and 76 pct reported paying higher prices for the suppies received.

Order backlogs continued for 60 pct reporting while buying policies of over 75 pct have extended beyond 90 days.

A large majority of those queried believe a realistic priorities allocation of materials should be instituted immediately. Three out of four of the reporting members feel present voluntary steel allocation allotments are not equitable.

Aluminum Assn. Elects Officers

New York—A. P. Cochran, of Cochran Foil Co., Inc., Louisville, Ky., has been elected president of the Aluminum Assn. A. V. Davis, of Alcoa, was re-elected chairman, and Donald M. White was reappointed secretary and treasurer. Vice-presidents are: I. T. Bennett, Revere Copper & Brass, Inc.; L. M. Brile, Fairmont Aluminum Co.; E. G. Fahlman, Permold Co.

Firm to Build at Olean, N. Y.

Milwaukee—Plans for erection of a plant at Olean, N. Y., to make protective power line equipment have been announced by Line Material Co. The 70,000 sq ft plant, on a 24 acre tract east of Olean, is expected to be in production by next fall. The local plant will be given over to munitions production.

NE Contracts Over $222 Million

Boston — Defense contract awards amounting to more than $222 million have been awarded in the New England area, according to the New England Council. The 6-state region is contributing 6 pct of national defense production compared with 9 pct during the peak of World War II.

OPS Steel Warehouse Order In Works; Would Affect Importers

Washington—Price adjustments for steel warehousers and importers are being considered by government price stabilizers.

The Office of Price Stabilization is drafting a new pricing regulation for the steel warehouse business that would put prices on a formula basis.

W. F. Sterling, metals price consultant, is studying means of affording relief to steel importers. The trade complains prices have been frozen at lower levels than those of competitors who recently entered the importing business. This makes it increasingly difficult for old firms to obtain foreign steel.

Information Service Set Up

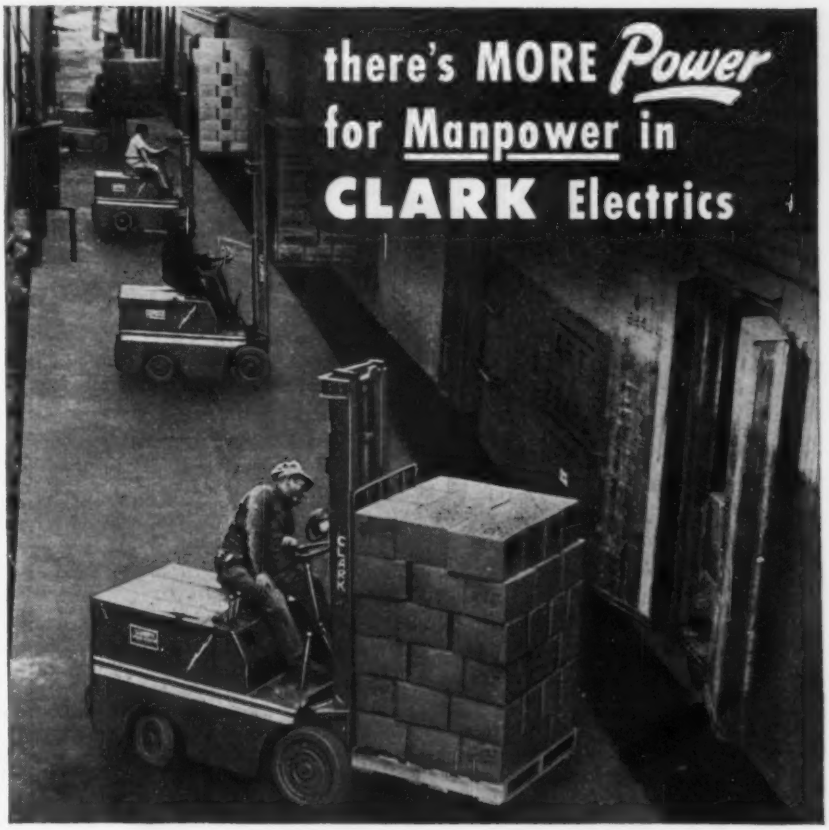
Washington—The Office of Publication Information of the Defense Dept. has established an Industrial Services Branch for spreading information of interest to industry. The branch will combine functions of the Industrial Services Div. of the War Dept. and the Industrial Incentive Div. of Navy Dept. of World War II.

Introduce New Tungsten Electrode

Fitchburg, Mass.—New Hi-Thoria tungsten electrodes, producing a stable arc over a wider range of currents and resisting contamination by weld metal, have been announced by General Electric's Welding Divs. here The firm claims major applications will be for inert arc welding with direct current, straight polarity with either argon or helium gas. The electrodes reportedly reduce costs.

Solar Aids Sub-Contractors

New York—Solar Steel Corp. has opened a Washington information office to help small business get information on sub-contracts, contract specifications, and government procurement procedures. The free service is directed by Nathan Siegal, 219 Woodward Bldg.



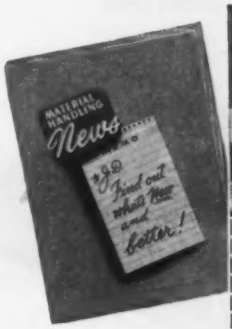
Users OF CLARK ELECTRIC FORK-LIFT TRUCKS are well prepared to meet the twin challenges of *labor shortage* and *increased user demands*. They've equipped their manpower with *enough more power* to get the job done, whatever it may be. *Getting the job done* is more important now than ever before; therefore, the fork-lift truck takes on added importance to production of goods essential to the military and to the civilian economy. In equipping workmen with fork-lift trucks, you make them much more productive while easing demands on their energies; you make them more valuable to you—and to themselves.

CLARK ELECTRICS (*Fork Truck capacities, 1000 lbs. to 7000 lbs. Electric-Powered Hand Trucks, 6000 lb. capacity*) are ideal equipment for many handling operations—in cold storage plants, food and chemical processing and similar installations. They actually do more work and at less cost, as a result of these superior features:

√ automatic acceleration √ "Dead-Man" safety controls
√ more dependable power √ finger-tip direction control
√ faster speeds √ easy steering √ hydraulic brakes

As a step toward more power for your manpower, get well acquainted with Clark Electrics, Clark gas-powered machines and the whole Clark Leadership Line of materials handling equipment. Send the coupon and get facts of fundamental value.

BE SURE TO SEE THE CLARK EXHIBITS AT THE 4TH NATIONAL MATERIALS HANDLING EXPOSITION INTERNATIONAL AMPHITHEATRE CHICAGO APRIL 30-MAY 4 1951

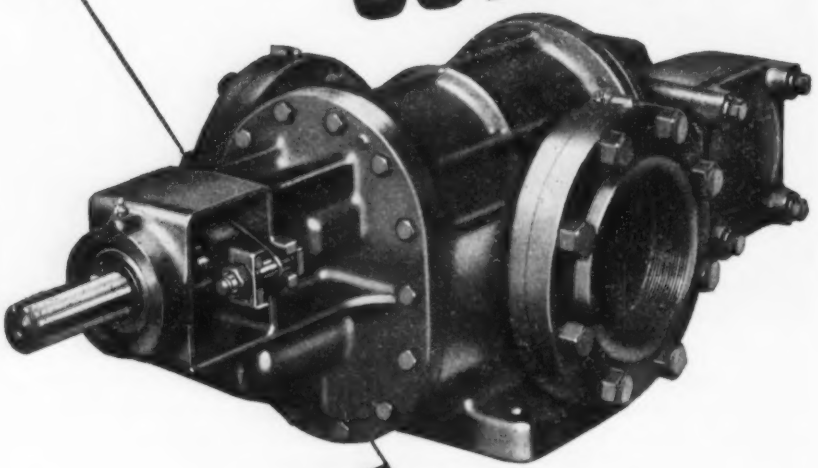


CLARK ELECTRIC AND GAS POWERED FORK TRUCKS
AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 51, MICHIGAN
Please send: ☐ Material Handling News ☐ Condensed Catalog ☐ Movie Digest
Name_____
Firm Name_____
Street_____
City_____ Zone____ State_____

AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

NEW... 300 G. P. M. COMPACT



ROPER 3600 HBRV No. 7 PUMP

For Petroleum, Process and General Industries

This new model Roper pump is extremely compact for its rated capacity of 300 G.P.M. It features the highly efficient venturi suction and discharge principle for smooth flow; deep packing box with lantern ring to permit effective sealing and long packing life. All components are carefully machined, inspected, and tested to assure dependable performance under prolonged runs. The case can be fitted for steam heated operation at small extra cost... ideal for pumping thick viscous liquids. It can be driven by gasoline engine, geared head motor or truck power take-off for a wide range of applications. Find out now how this Roper 3600 fits into your pumping requirements.

Send for Descriptive Literature

GEO. D. ROPER CORP.
102 Blackhawk Park Ave.
ROCKFORD, ILLINOIS

ROPER Rotary Pumps

Armour Foundation Scientists Can Now X-Ray Steel 8 in. Thick

Chicago—Scientists at Armour Research Foundation of Illinois Institute of Technology can now take X-ray pictures through solid steel 8 in. thick

A radioactive source shielded by 16 to 30 in. of concrete emits 65 billion gamma rays per second and has a penetration power similar to 1.8 grams of radium. With this source, hidden flaws in metal castings, welds, and soldered joints can be detected and crystals sensitive to radiation can be studied, according to Dr. Richard C. Humphreys, assistant chairman of the Foundation's physics department.

Technically termed cobalt 60, the radiation source enables physicists to make shadowgrams of subject material on photograph film placed between two sheets of lead. The exposures frequently require up to 48 hr.

English Boost Coal 58¢ a Ton

London—The National Coal Board has approved a boost in coal prices, as of Feb. 5, to compensate for government pay raises to miners aimed at increasing production.

The increase, 58¢ a long ton at the mine, will add $19,600,000 to the steel industry's annual fuel bill, or more than $1 a ton on finished steel. Whether or not the industry will absorb the increase has not been decided. Present fuel supplies are low and a long winter would result in large-scale shutdowns.

Ships Package Power Plant

Sunnyvale, Calif.—The largest and heaviest assembly of electrical apparatus, a 157,000-lb power plant, was shipped from Westinghouse Electric Corp.'s plant, here to Thomasville, Ga. To add 5000 kw to that city's power supply, the unit was delivered as a packaged unit on a special low-bed railroad car. It included a steam condenser, steam turbine, and electric generator.

These new free booklets can help you CUT CORROSION COSTS IN YOUR PLANT!

To prevent rust and other corrosion of metal—to prevent deterioration of concrete and masonry— Koppers manufactures six Bitumastic® Protective Coatings; each one of these coatings is specially formulated to control specific kinds of corrosion. Now, in one compact package, Koppers offers booklets that describe all of these coatings, and show how they can solve your plant's corrosion problems. A "Visual Index" is included, too, making it easy to find the information you want.

The factual data in these booklets will be valuable in helping you to cut plant maintenance costs. Send for a set of booklets today. Just fill out and mail the handy coupon.

HERE'S WHY KOPPERS BITUMASTIC COATINGS GIVE LASTING PROTECTION AGAINST CORROSION AND DETERIORATION:

- **Koppers Coatings, unlike maintenance paints, are specially formulated from a tar-pitch base* that is for all practical purposes impervious to water.**
- **Koppers Coatings provide a tough, impenetrable barrier to corrosive elements.**
- **Koppers Coatings provide up to 8 times the film thickness of conventional paint coatings.**
- **Koppers Coatings stop corrosion caused by moisture . . . acid fumes . . . alkaline fumes . . . corrosive soil . . . salt air . . . heat.**

* *Hi-Heat Gray contains heat-resistant metallic base*

Koppers Company, Inc.
Tar Products Division, Dept. 252T
Pittsburgh 19, Pa.

Please send me without charge or obligation your booklets on corrosion prevention.

Name.....

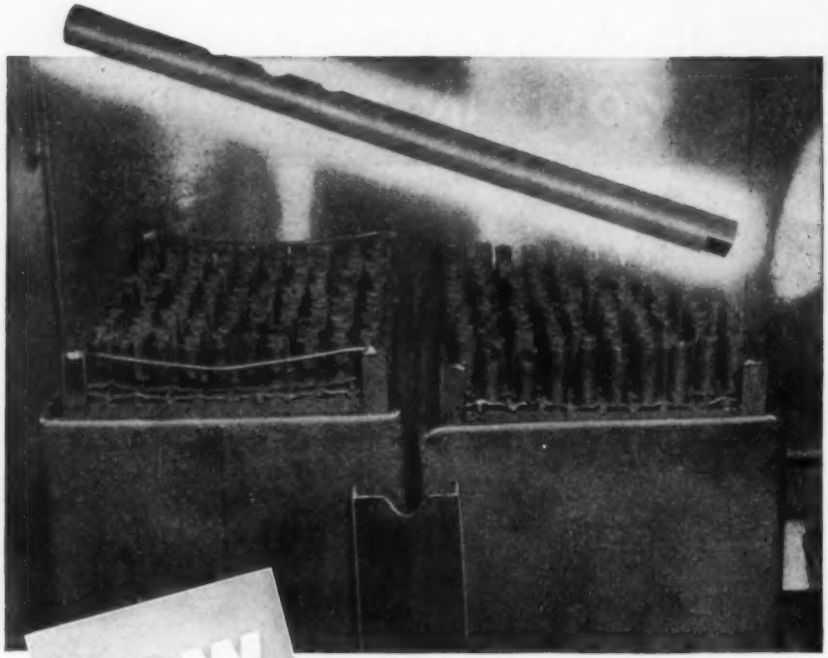
Address.....

City..... Zone..... State.....

KOPPERS **BITUMASTIC** PROTECTIVE COATINGS
REG. U.S. PAT. OFF.

SOLD THROUGH INDUSTRIAL DISTRIBUTORS

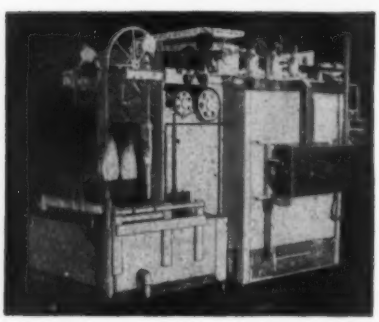
KOPPERS COMPANY, INC., Tar Products Division, Dept. 252T, Pittsburgh 19, Pa.



DOW sets another new record of efficiency and cost reduction

CASE HISTORY OF DOW HEAT TREATING PERFORMANCE ON SHIFTER SHAFTS AT TRACTOR PLANT

Heat Treatment: .005"-.008" effective case, carbonitrided 1500°F, Oil Quench, File Hard
Load: 640 Shifter Shafts, Fixture loaded, 1024 lbs. net — 1384 lbs. gross
Heating Time: 70 minutes **Total Furnace Time:** 2 hours 10 minutes
Net Production: 472 lbs. per hour



By processing these parts in the Dow Furnace, distortion is reduced sufficiently to permit elimination of the grinding operation after heat treating. Since no case is removed by grinding, the specified depth of case is reduced, effecting still further savings in heat treating costs. Reductions in direct labor, material handling, machining and cleaning costs, coupled with improved quality, contribute to savings which can amortize the original cost of your Dow Furnace in a few months.

DOW FURNACE OFFERS

- Gas cyaniding for ⅓ to ¼ the cost of liquid cyaniding
- Uniformity of light case depths throughout load
- Unmatched versatility — gas cyaniding, gas carburizing, clean hardening or carbon restoration
- Improved quality. Forced, uniform quenching gives full hardness, reduced distortion.
- Maximum capacity with minimum investment and floor space

FIRST
WITH MECHANIZED BATCH-TYPE
CONTROLLED ATMOSPHERE FURNACES

THE DOW FURNACE COMPANY

Maccabees Bldg. • Detroit 2, Michigan
TEmple 1-3553

Joint Oil Products Terminal In Birmingham to Cover 61 Acres

Birmingham—Construction has begun on a million-dollar oil products terminal to be jointly owned and operated by Pan American, Pure Oil and Gulf Refining Companies.

The terminal, with storage tanks, pipelines, pumping stations and railroad sidings, will cover more than 61 acres.

Rives Construction Company, Birmingham, has the general contract. The storage tanks will be built by the Chicago Bridge & Iron Company and the railroad sidings by the Louisville & Nashville R.R.

Osborn to Modernize Plants

Cleveland—A program to cut smoke output at the Osborn Mfg. Co.'s plant in Cleveland and modernize its Henderson, Ky., plant has been announced. New equipment at Cleveland will include a coal and ash handling system, storage silo, and railroad coal unloading equipment.

A new 200 hp boiler will be installed at the Kentucky plant. Osborn, makers of industrial brushes and foundry molding machines, will spend $500,000.

Austria Blooming Mill Order

Pittsburgh—Lewis Foundry & Machine Div. of Blaw-Knox Co. has received an Austrian order for a two-high reversing blooming mill for installation at the Donawitz Steel Works of the Alpine Montan Co., largest steel producer in that country. The order amounts to more than $1 million and is the second received by Lewis from Austria for rolling mills and machinery through ECA.

U.S. Pays English Mill Fees

London—American engineering firms building a billet mill, slabbing mill, and blast furnace at Consett Iron Co., Ltd., County Durham, will be paid $583,000 from Marshall Plan funds, the Economic Cooperation Administration has announced.

38 factory-trained fieldmen in constant circulation

THE BEST ten SOURCES FOR MECHANICAL SPRINGS

10

WALLACE BARNES COMPANY
BRISTOL, CONNECTICUT

THE WILLIAM D. GIBSON COMPANY
1800 CLYBOURN AVE.
CHICAGO 14,

RAYMOND Manufacturing COMPANY
CORRY, PENNSYLVANIA

BARNES-GIBSON-RAYMOND
6400 MILLER AVE.
DETROIT, MICH.

B-G-R COOK PLANT
ANN ARBOR
MICHIGAN

F. N. MANROSS AND SONS CO.
BRISTOL
CONNECTICUT

OHIO DIVISION
1712 EAST FIRST ST.
DAYTON, OHIO

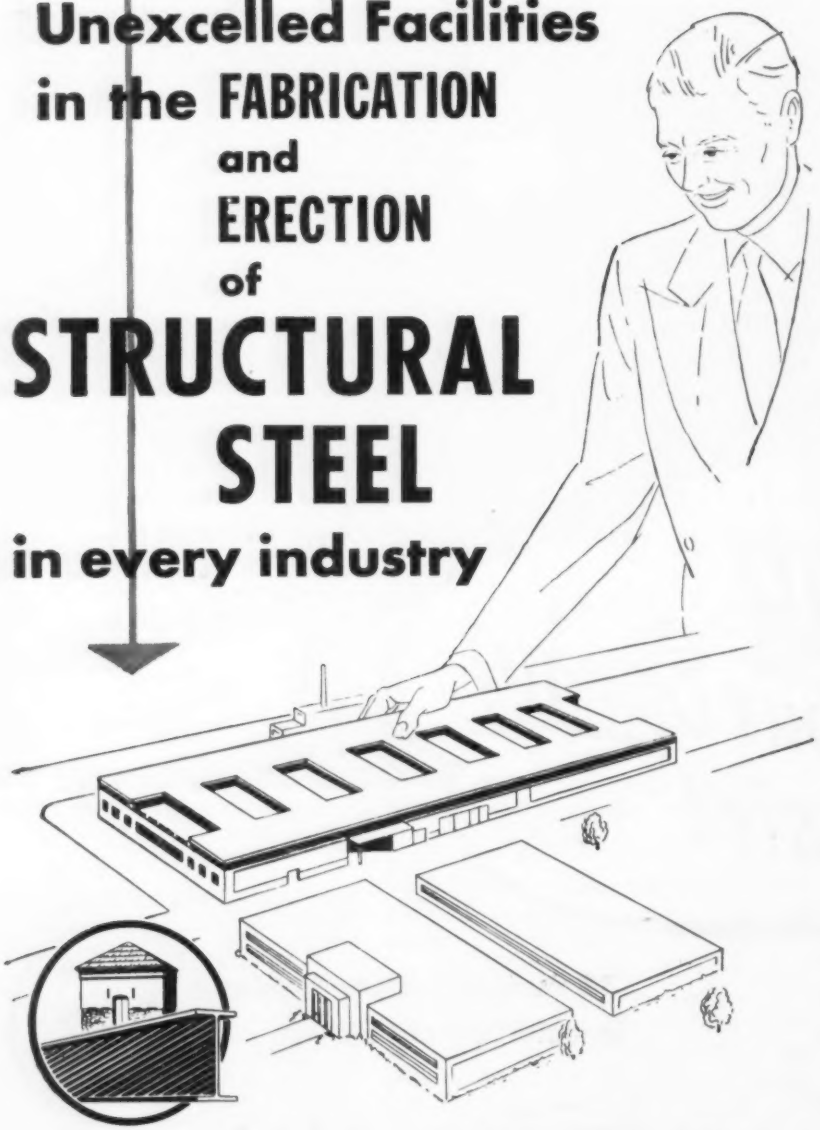
DUNBAR BROTHERS COMPANY
BRISTOL, CONN.

MILWAUKEE DIVISION
341 E. ERIE ST.
MILWAUKEE, WIS.

THE WALLACE BARNES COMPANY LTD.
HAMILTON, ONT.
CANADA

DIVISIONS OF
ASSOCIATED SPRING CORPORATION
AND CANADIAN AFFILIATE

Practical Experience
PLUS
Unexcelled Facilities
in the FABRICATION
and
ERECTION
of
STRUCTURAL STEEL
in every industry



Steel plants, furniture plants, assembly plants, power plants, institutions, office buildings, bridges, wherever structural steel is used for new construction or additions to existing facilities —the Fort Pitt Bridge organization stands ready to assume the responsibility for fabrication and erection—backed by years of skill and experience and an outstanding reputation for dependability.

"Steel Permits Streamlining Construction with Safety, Endurance and Economy."

FORT PITT BRIDGE WORKS

Member American Institute of Steel Construction

General Offices, Pittsburgh, Pa . . . . Plant at Canonsburg, Pa.

DISTRICT OFFICES

NEW YORK, N.Y. . . 441 Lexington Avenue CLEVELAND OHIO . . . . Bulkley Building

DETROIT, MICHIGAN . New Center Building

STEEL CONSTRUCTION NEWS

Fabricated steel awards this week included the following:

132 **Tons,** Rapides Parish, Louisiana, highway bridge for Louisiana Highway Department, Forcum & James Company, contractors, to Virginia Bridge Company, Birmingham.

100 **Tons,** Coffee County, Alabama, highway bridge, for Alabama Highway Department, E. W. Norrell, contractor, to Virginia Bridge Co., Birmingham.

Reinforcing bar awards this week included the following:

1300 **Tons,** Chicago, Veterans Administration office and clinic building 11., to Joseph T. Ryerson and Son.

1000 **Tons,** Duluth, Oliver Iron Mining Co., to U. S. Steel Supply Co.

970 **Tons,** Chicago, Wacker Drive, Madison to Washington Sts., to Joseph T. Ryerson and Son.

900 **Tons,** Mobile, Ala., grain elevator, Jacks Construction Co., to Ceco Steel Products Co., Birmingham.

600 **Tons,** Columbus, Ga., housing project, Columbus Housing Authority, to Ceco Steel Products Co., Birmingham.

500 **Tons,** Chicago, Kostner Ave. sewer contract 3A, to U. S. Steel Supply Co.

500 **Tons,** Louisville, school, to Truscon Steel Co.

310 **Tons,** Chicago, Catholic Order of Foresters building, to Joseph T. Ryerson and Son.

300 **Tons,** Peoria, Ill., apartment building, to Olney J. Dean Co.

250 **Tons,** Milwaukee, Cutler Hammer Co., to Joseph T. Ryerson and Son.

238 **Tons,** Huntsville, Ala., Redstone Arsenal buildings, Butler & Cobbs Co., contractors, to Truscon Steel Co., Birmingham.

190 **Tons,** Blue Island, Ill., Illinois Bell Telephone Co., to U. S. Steel Supply Co.

Reinforcing bar inquiries this week included the following:

7700 **Tons,** Chicago, 87th and Dorchester Sts. housing project.

1400 **Tons,** Peoria, Ill., U. S. Engineers.

1000 **Tons,** Lakewood, Ohio, Edgewater Drive apts.

405 **Tons,** Brockenridge, Pa., Allegheny Ludlum Steel Corp.

250 **Tons,** Keokuk, Iowa, senior high school.

165 **Tons,** Franklin, Wis., administration and dormitory building.

135 **Tons,** Milwaukee, Chain Belt Co.

125 **Tons,** Akron, Ohio, Goodyear Rubber Co., Plant 2.

NPA Raises Mill DO Limits

Washington — Steel mills got official word from National Production Authority's general counsel, Manley Fleischman, that the following DO limits are revised upward within the prescribed lead time, effective immediately:

Mechanical tubing, 15 pct; alloy mech. tubing, 60 pct; sheet bar carbon, 5 pct; sheet bar alloy, 5 pct; wire rods, 15 pct; cold-finished bars, carbon, 25 pct; alloy bars, 40 pct; drawn wire, 10 pct; rough forgings, carbon, 30 pct; rough forgings, alloy, 30 pct; blooms, billets, slabs, carbon, 10 pct total. (Was 5 pct on each and is a reduction.)

Alloy blooms, billets, slabs, 45 pct total; tube rounds, carbon, 15 pct; alloy tube rounds, 60 pct; hot-rolled bars, 15 pct; hot-rolled bars, projectile and shell quality, 35 pct of tonnage represented by above, 15 pct; alloy bars, 45 pct; projectile and shell quality alloy bars, 35 pct of tonnage represented by the above, 45 pct; reinforcing bars, 20 pct; hot-rolled sheets, 17 pct; cold-rolled sheets, 15 pct; galvanized sheets, 10 pct; hot-rolled strip, 12 pct; cold-rolled strip, 12 pct; sheets, all other coated, 10 pct; and effective with May, carbon and alloy plates, 20 pct.

The "Heat" is on

AT WISCONSIN STEEL

A hundred tons of molten steel . . . yet it's only part of the day's work at our mill as we tap heat after heat of quality steel.

We are straining our plant capacity to the utmost. The "heat" is on us and the entire industry to provide enough steel to meet the increasing demands of our changing economy.

At Wisconsin, we are not compromising rigid standards of quality. We are not making delivery promises we are unable to keep. Our policy is, and always has been, to produce and deliver as we promise. We are putting the "heat" on production to the limit of our ability. We feel sure that our customers will understand when we cannot supply their full requirements.

INTERNATIONAL HARVESTER

WISCONSIN STEEL COMPANY, affiliate of INTERNATIONAL HARVESTER COMPANY
180 North Michigan Avenue, Chicago 1, Illinois

WISCONSIN STEEL

HYDROSTATIC testing of tubes is fast and easy on this completely self-contained machine. It handles tubes 4½" to 12" of maximum 35' length at preset test pressures of 700 to 1500 pounds, sealed on the ends, outside or inside diameters as desired. Maximum diameter and length tubes are tested at an average rate of one every 2 minutes, but smaller size or shorter length tubes give proportionately larger production.

The entire cycle of automatic tube admission, centering, clamping, testing, draining and ejection is single-operator worked from one control panel. Write today for complete information.

HYDRAULIC PRESSES AND VALVES FOR [illegible] PURPOSE • ACCUMULATORS • ALLEVIATORS • INTENSIFIERS

EST. 1803 R.D. Wood Company PUBLIC LEDGER BUILDING, PHILADELPHIA 5, PA.

publications

Continued from Page 36

netic controllers for mill auxiliaries are discussed in the second section. These controllers use the newly-developed type M contactor, which is available in NEMA ratings from 25 to 2500 amp. The different controllers in the line are listed, with a typical circuit diagram presented and explained. Operation of the type AP plugging relays is detailed. Standard accessories for the controllers are also described. *Westinghouse Electric Corp.*

For free copy insert No. 8 on postcard, p. 37.

For Separating, Lifting

The line of Rapid magnetic separating and lifting equipment, claiming high functional efficiency and long life with negligible maintenance, is described in a new 8-p. bulletin. Various sizes and models of laboratory and production units are shown, along with several types of lifting magnets and electromagnetic chute separators made by this British company. A representative list of materials which have been treated by the magnetic equipment described is included. *Rapid Magnetic Machines Ltd.*

For free copy insert No. 9 on postcard, p. 37.

Fine Small Tubing

Information on the analyses available, production limits, commercial tolerances, temper designations and product descriptions of seamless and Weldrawn tubing, available in sizes from 0.010 to 1⅜ in. OD, is presented in a new 4-p. bulletin. Items described in the folder include mechanical tubing, shaped tubing, aircraft tubing, instrument tubing, and tubing for electronic products. Information on ordering and a list of distributors are shown. *Superior Tube Co.*

For free copy insert No. 10 on postcard, p. 37.

Instrument Uses Reviewed

The acceleration of research through the use of industrial and related instruments and apparatus is the subject of a new 84-p. book describing many types of equipment, which, alone or in combination with other apparatus, are being used in research and analytical studies. The book details the

*CrysCoat is in Good Company!

*Prepares Metal Surfaces for Painting

**Patented Material and Process*

"MEALMASTER", (Knox Stove Co.) the new, revolutionary combination Coal-Electric, Oil-Electric range that cooks, bakes and heats with either fuel is one of Americas' finest ranges. Beautifully designed, sturdily constructed . . . "Mealmaster" is built to give dependable long-life service. And quality manufacture is carried on through to the durable finish. Here all painted surfaces are first CrysCoated for long-lasting paint adherence and protection against the spread of rust in case of accidental damage to the finish.

The Oakite *CrysCoat* Process may be just what you're looking for. With minimum equipment . . . in minimum time . . . at minimum cost you can (1) clean metal surfaces and condition them for painting; (2) improve the adhesion of paint to metal; (3) prevent corrosion before metal is painted; (4) localize corrosion under paint if finish is broken.

The Oakite *CrysCoat* Process Offers These Extras:

1. **Eliminates operations . . . uses less equipment**
2. **Cuts operating time**
3. **Uses less chemicals for cleaning and conditioning**
4. **Reduces heating costs**
5. **Saves cost of expensive acid-proof tanks and equipment**
6. **Saves cost of frequent descaling and desludging**
7. **Drag-out costs are less because of low original cost of solution**
8. **Saves paint**
9. **Cuts cost of rejects caused by rusting before painting**

FREE . . . illustrated folder describes the Oakite *CrysCoat* Process for use in before-paint-treatment of steel, aluminum sheet and castings, zinc die castings and galvanized surfaces. If you are engaged in the fabrication of civilian goods or the speedy production of defense orders—send for Folder F7642.

OAKITE PRODUCTS, INC., 30H Thames St., NEW YORK 6, N. Y.
Technical Service Representatives in Principal Cities of U. S. & Canada

SPECIALIZED INDUSTRIAL CLEANING

OAKITE

TRADE MARK REG. U. S. PAT. OFF.

MATERIALS • METHODS • SERVICE

For low-cost electrocleaning use Wyandotte F.S.

Wyandotte F. S.* is designed for heavy-duty electrocleaning. It is a reverse current electrocleaner of well-balanced formula, gets work chemically clean. Important, too, Wyandotte F. S. has long life in solution and contains ingredients for water conditioning and improved rinsing.

While F. S. is used primarily for the cleaning of ferrous parts, it is satisfactory for heavy-duty electrocleaning of copper, bronze and magnesium. We suggest you write us, at Wyandotte, for the Technical Information sheet on F. S.

*Reg. U.S. Pat. Off.

Owning its basic raw materials places Wyandotte in an especially advantageous position to maintain quality—supply large quantity needs consistently.

PERFORMANCE CHARACTERISTICS

Wyandotte F. S.

- Exceptional detergency for removal of fabricating oils and smut
- Excellent smut removal
- High conductivity for maximum gas scrubbing action
- Fast and complete wetting action
- Controlled foaming
- Proper conditioning of hard water
- Very free rinsing
- High soil suspension ability
- 100% solubility in water
- Outstanding solution life
- Controlled uniform quality

THE WYANDOTTE LINE—products for burnishing and burring, vat, electro, steam gun, washing machine and emulsion cleaning, paint stripping, acid pickling, related surface treatments and spray booth compounds. An all-purpose floor absorbent: Zorball. In fact, specialized products for every cleaning need.

WYANDOTTE CHEMICALS CORPORATION
WYANDOTTE, MICHIGAN
Service Representatives in 88 Cities

Wyandotte
REG. U. S. PAT. OFF.

publications

Continued

robotized polarograph, titrator and still applications, and describes various types of spectrometers and continuous gas analyzers. The section on precision laboratory measuring instruments includes mention of electronic indicators, the Electrometer, pyrometers for measuring low temperatures and radiation pyrometers for measuring temperatures up to 7000°F. This section also includes information on high vacuum gages, and pressure and force transducers. A third section reviews research apparatus components such as converters, balancing motors and servo amplifiers which constitute integral operating parts of research and analytical apparatus. *Brown Instruments Div., Minneapolis-Honeywell Regulator Co.*

For free copy insert No. 11 on postcard, p. 37.

Stud Driver Bulletin

A new 4-p. bulletin on Aero-Thread stud drivers covers the uses and operation of both hand and power models. Driving and removing studs of any standard or special thread form is illustrated, showing how the tool will drive and extract any stud without marring the stud's threads or mushrooming its end. Detailed instructions explain how to regulate the stud driver, how to drive and extract studs, and how to remove them from the driver. *Heli-Coil Corp.*

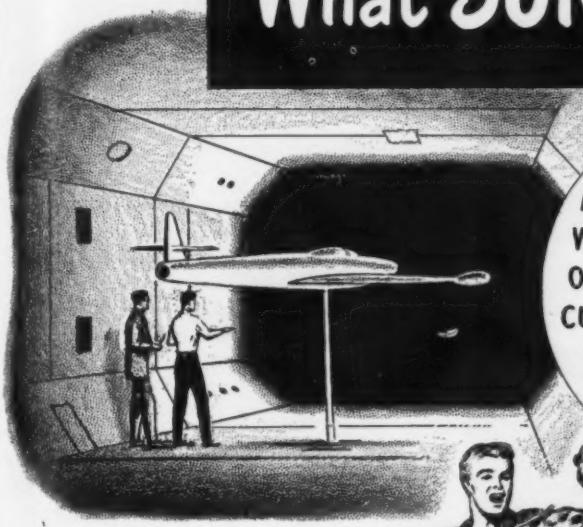
For free copy insert No. 12 on postcard, p. 37.

Die Casting Data

A new booklet on die castings—their advantages, how they are made, how they should be designed—provides basic information and help to anyone who has anything to do with die castings; it also contains essential technical information for designers and engineers. Steps in the manufacture of die castings are pictured, and the booklet includes information on draft, tolerance, wall thickness and core size requirements, tables of chemical and physical specifications for alloys, and a production timetable. *Die Castings Div., Hoover Co.*

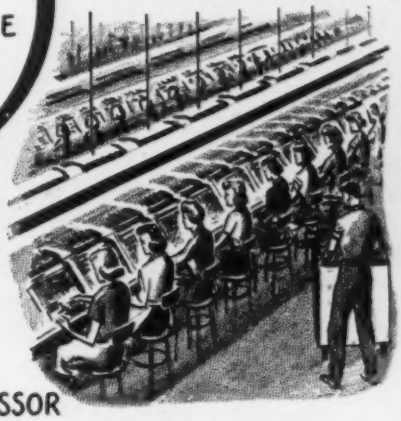
For free copy insert No. 13 on postcard, p. 37.
Resume Your Reading on Page 37

What SUN has done for others...



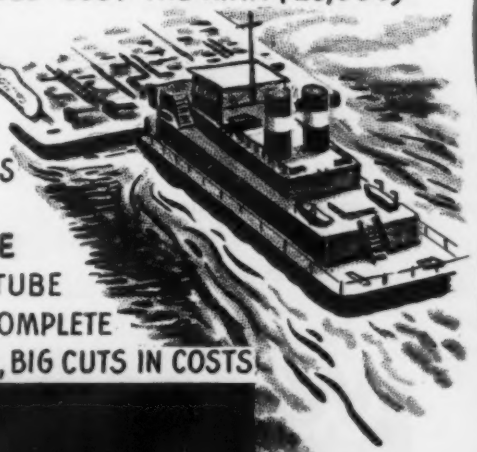
STRATEGIC MULTI-MILLION-DOLLAR WIND TUNNEL DEPENDS ON **SUNVIS** TO OIL-CUSHION THE SENSITIVE BALANCE SYSTEM FOR MEASURING STRESSES

MANUFACTURER OF BUSINESS MACHINES COATS FACTORY AIR SUPPLY FILTERS WITH **SUNTAC**-IMPROVES PURIFICATION BY 50%



SUNISO IN THE COMPRESSOR ASSURES ICE FOR MAJOR SPORTS ARENA (ONE REFRIGERATION FAILURE COULD COST THE RINK $25,000)

SUN CUP **LC GREASE** PROVES EFFECTIVE IN MAST AND HOUSING OF TV AERIALS UNDER ALL WEATHER CONDITIONS-AND UNDER TEMPERATURES FROM-20° TO+150°



RIVER TOWBOAT SWITCHES FROM OIL TO **SUN ADHESIVE PRESSURE GREASE** FOR STERN-TUBE BEARINGS. RESULTS: COMPLETE SUCCESS, LONGER LIFE, BIG CUTS IN COSTS!

..SUN can do for you!

SUNOCO®

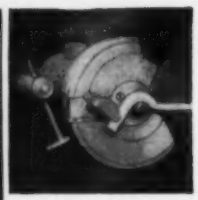
Unusual problems or run-of-the-mill—thoroughly "Job Proved" products are only half the story of their solution. *The other half is correct application.* That's why it will pay you to call in a Sun industrial representative. His broad experience can mean substantial savings in your operations. Just get in touch with the nearest Sun Office.

SUN OIL COMPANY · *Philadelphia 3, Pa.*

In Canada: Sun Oil Company, Ltd., Toronto and Montreal

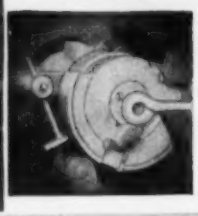
Hydraulic Eye-Bender . . .

for production shaping of small stock and forming round or oval eyes, hooks, etc.



Above
Starting bend

Below
Finished eye



- Completely new, self-contained, hydraulically operated bender
- Welded steel construction
- Hydraulic pump with direct drive, 5HP electric motor
- Footbutton control; "inching" button provided for setting dies.
- Capacity: 1" diam. stock (hot) around a 1½" mandrel
- Strokes per minute, 20

The machine described above is typical of the up-to-date, efficient machines by WILLIAMS-WHITE & CO.

Write for free information regarding this and other WILLIAMS-WHITE machines, including presses, bulldozers, punches, shears, rolls and hammers for every type of heavy production.

MAKERS OF QUALITY PRODUCTION TOOLS FOR NEARLY 100 YEARS

WILLIAMS-WHITE & Co.
703 THIRD AVE., MOLINE, ILLINOIS

production ideas

Continued from Page 40

start and stop of the work table with the advantage that the welding machine and the work table can be synchronized to start at the same time, by pushbutton control. The work table which tilts at any position about 360° rotates at infinitely variable speeds from zero

to 5 rpm with back-lash reduced to a minimum, allowing smooth, jerk-free rotation on Timken taper roller bearings. The work arm can be any length up to 16 in. An air cylinder attached to the table spindle provides that a pull-bar attached to the cylinder through the hollow spindle will clamp the workpiece to the table with advantageous speed. *Aronson Machine Co.*

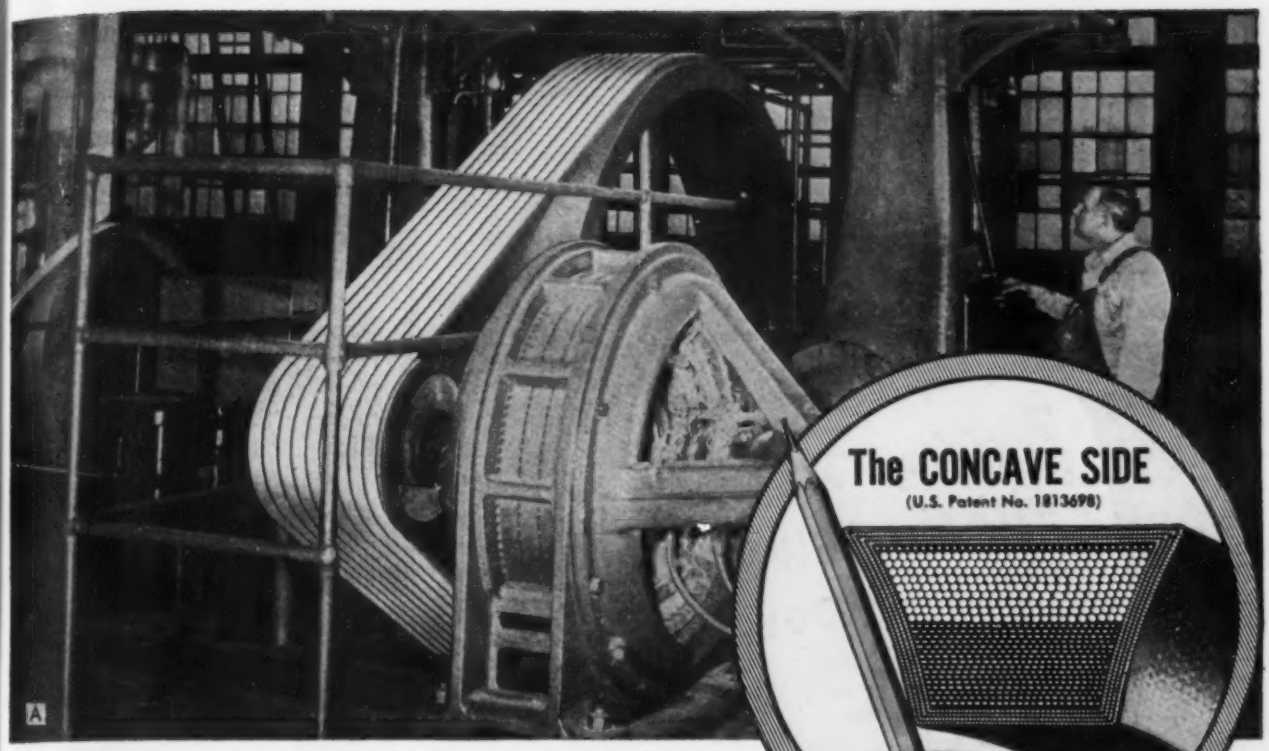
For more data insert No. 29 on postcard, p. 37.

Heat Treating Furnace

The small production type furnace with the big furnace features.

Lite-Cast refractories are used in the heat treating chamber, insuring a quick heat up for efficiency

and long life. Specifications: chamber size, 7 x 7 x 12 in.; maximum temperature, 2000°F; heat up time, 3 speeds, slow, medium and fast. Controls: indicating type of thermocouple thermometer; electronic,



The City Ice and Cold Storage Co., of Kansas City, Kansas, saved much space with this very compact Vulco Rope Drive on the huge compressor shown. Mr. H. L. Frentrop, Chief Engineer, says of this Drive: "It has been in operation for 17 years and the *original* Gates belts still look good for many years of service."

This Simple Test Tells WHY the Concave Sides of Gates Vulco Ropes Mean *Longer Belt Life!*

Prove this *yourself*—in two minutes' time.

Take any V-belt that has *straight* sides. *Bend* that V-belt while you grip its sides between your fingers and your thumb. You will *feel* the sides of the belt *bulge out*—as shown in figure 1-A, below.

Clearly, that outbulge forces the sides of the belt to press *unevenly* against the V-pulley—and this concentrates the *wear* where the bulge is greatest.

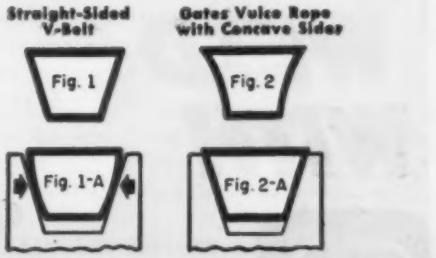
Now, make the same test with the belt that is built with the Concave Sides—the Gates Vulco Rope.

Figures 2 and 2-A show clearly what happens when you bend a Vulco Rope. Instead of *bulging*, the precisely engineered Concave Sides merely *fill out* and become perfectly straight. There is no side-bulge. This belt, when bent, precisely fits its sheave groove.

Because there is *no bulging*, the sides of the Gates Vulco Rope always grip the *full* face of the V-pulley *evenly* and therefore wear *uniformly*—resulting in *longer belt life* and *lower belt costs for you.*

Only V-belts made by Gates are built with concave sides. Whenever you buy V-belts, be sure that you get the V-belt with the Concave Sides—The Gates Vulco Rope!

What Happens When a V-Belt Bends



How Straight-Sided V-Belt Bulges in Sheave-Groove. Sides Press Unevenly Against V-Pulley Causing Extra Wear At Point Shown by Arrows.

The Concave Sides Fill Out to a Precise Fit in the Sheave-Groove. No Side Bulge! Sides Press Evenly Against the V-Pulley—Uniform Wear—Longer Life!

CS-511

THE GATES RUBBER COMPANY
DENVER, U. S. A.
The World's Largest Makers of V-Belts

Gates VULCO ROPE DRIVES
Engineering Offices and Jobber Stocks IN ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries

Save Time

Save Money

Welding High Tensile Steels

with the NEW TENSILEND 70

LOW HYDROGEN ELECTRODE

It is made with stainless type coating, developed by Arcos, which **minimizes the amount of hydrogen** in the arc atmosphere. This control of hydrogen means

- No Underbead Cracking
- No Preheat

Tensilend 70 can be used for welding the widest range of high strength, low alloy steels. It has proved most effective in achieving sound welds with superior physicals — high ductility and impact strength.

ARCOS CORPORATION

1500 South 50th St., Philadelphia 43, Pa.

The ABC'S of Welding
High Tensile Steels

Write for "The ABC's of Welding High Tensile Steels" for helpful, technically accurate, but easy-to-read information that shows the way to better welding results.

WELD WITH

ARCOS

Specialists in Stainless, Low Alloy and Non-Ferrous Electrodes

production ideas

Continued

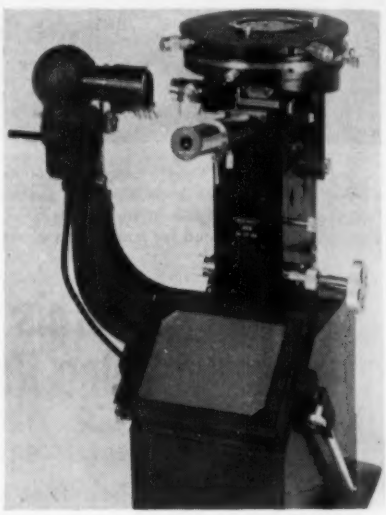
pyrometric types; gold fuse overheating control. The furnaces are made in sizes and types to specifications up to 12 x 12 x 24 in. chamber. *Monogram Products Co., Inc.*

For more data insert No. 30 on postcard, p. 37.

Camera Microscope

For metallurgical work; built-in camera; magnification 4,5 to 2200X.

Among the outstanding features of this Reichert universal camera microscope MeF are the instant changeover from bright to dark ground illumination, the instantaneous transition from visual observation to photography and from ordinary to polarized light. Methods of illumination include vertical and oblique internal having bright grounds; flat oblique multilateral and unilateral external with dark grounds. The instrument is convenient for micrography. Drawing and projection micro hardness tester accessories are available. *William J. Hacker & Co.*



For more data insert No. 31 on postcard, p. 37.

Integral HP Gear-Motors

Maximum flexibility of mounting, easy to assemble on any apparatus.

With the addition of ventilated integral hp gear-motors, the Janette line includes ventilated, enclosed, and totally enclosed fan-cooled types of gear motors. The single phase type motors are available in 1 hp and smaller ratings; polyphase and dc motors are available through 7½ hp. Integral hp, class 2 gear-

Rubber Parts...

NEW CATALOG CONTAINS DATA ON COMPOUNDS, APPLICATIONS AND FABRICATION METHODS

This 16-page, illustrated, multi-colored catalog now is available to design, production, purchasing and management personnel. This publication has been compiled to familiarize readers with Stalwart-developed rubber compounds which feature resistance to (1) abrasion, (2) chemicals, (3) high and low temperatures, (4) petroleum products and derivatives, and (5) weathering. Sections of the catalog are devoted to the new and outstanding Silicone Rubber compounds, the major methods of fabrication, and Stalwart production facilities.

More than 60 Stalwart-developed compounds are listed by code number. Charted individually in conjunction with these compounds are their physical properties and general characteristics, as well as suggested applications.

Catalog 51SR-1 will be sent upon receipt of coupon or on letterhead request.

STALWART RUBBER COMPANY

2164 NORTHFIELD ROAD • BEDFORD, OHIO

THE STALWART RUBBER COMPANY

Please send (without obligation) your new 16-page, illustrated, multi-colored Catalog 51SR-1.

NAME _____ **TITLE** _____

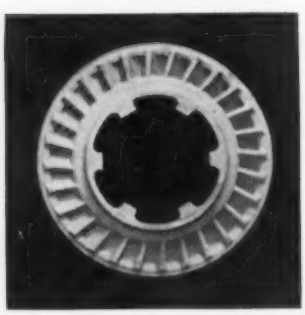
COMPANY _____

ADDRESS _____

CITY _____ **ZONE** ____ **STATE** _____

to answer the HOT question... specify LEBANON HEAT-RESISTANT Centrifugal Castings

CYLINDRICAL shapes cast in permanent molds by the exclusive Lebanon CENTRI-DIE process, are succeeding where other castings have failed. There are important reasons why Lebanon is able to produce these tough, service-proved castings with such outstanding qualities. First . . . *Lebanon experience*, covering some 39 years, has taught us how to work with difficult-to-cast heat and corrosion alloys. Second . . . *Lebanon testing* involves every proved method (including the use of a million-volt X-Ray machine) to insure absolute structural integrity. Third . . . *Lebanon exclusive processes*, like our CENTRI-DIE method of casting, were developed to give castings superior physical properties, more uniformity and to retain high resistance to many types of destructive agents. For example, today's jet engines which are subject to extremely high temperatures, depend upon Lebanon CENTRI-DIE castings. Lebanon Castings can be made to meet A.I.S.I., A.S.T.M., A.M.S., Army and Navy specifications.



Write for your copy of the Lebanon CENTRI-DIE Bulletin so that you may have, at first hand, all the facts on this important process.

LEBANON STEEL FOUNDRY • LEBANON, PA.
"In the Lebanon Valley"

Other Lebanon quality products include centrifugal castings produced in refractory molds—illustration shows a typical casting made by this process.

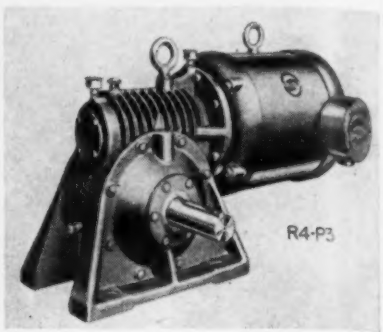
LEBANON *ALLOY AND STEEL* Castings

CIRCLE L

production ideas

Continued

motors will soon be available for use in explosive atmospheres. Six types and 16 sizes of gear boxes can be furnished with motors. Gear



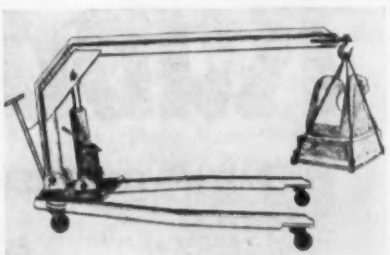
boxes include gear combination for single or double reduction, and for worm gear or combination worm-and-planetary gears. *Janette Mfg. Co.*

For more data insert No. 32 on postcard, p. 37.

Hydraulic Hoist

Makes light work of heavy lifting.

A new portable hydraulic hoist permits one man to move and handle vehicle power plants, heavy castings and equipment up to 5000 lb weight. The hoist permits getting into places inaccessible to



overhead equipment. Tracks and cranes are eliminated and alignments to a fraction of an inch are said to be possible by the hydraulically controlled boom. Loads can be raised to a height of 8½ ft. Ball bearing casters permit easy movement. *South Chester Corp.*

For more data insert No. 33 on postcard, p. 37.

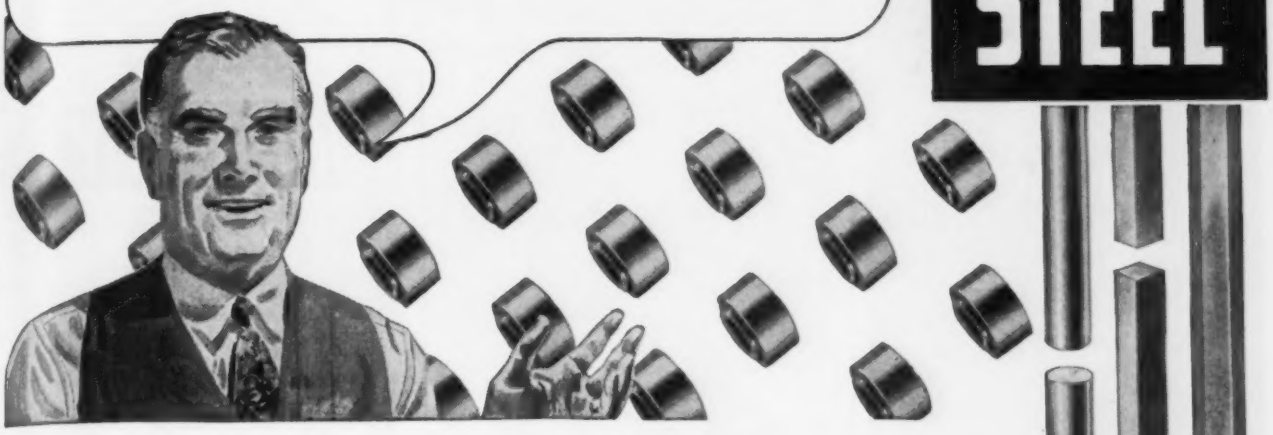
Continuous Wire Gage

Controls the amount of material the extruder places on the wire.

Designed to handle wire of any size up to 1 in. diam, the gage automatically speeds up or slows down the speed of the wire as it passes

WE INCREASED PRODUCTION 71% WITH J&L "E" STEEL

J&L STEEL



(a story* about how to win customers and influence prospects)

"Got a minute? Well, let me tell you about what happened at our machine shop a couple of months ago when we first tried that new J&L "E" Steel. You wouldn't believe it was possible! (Confidentially, neither did we until we proved it to ourselves.) Here's what happened.

"We got an order to produce a big lot of plunger stops for solenoid starter switches. They're tricky to run, and you've got to be pretty careful every second. We'd read about "E" Steel in some of J&L's ads, and decided we might try some on this job.

"So we ordered some 17/32" E-33 "E" Steel stock, set up our B&S #2 and B&S #0 Automatics and began to turn out parts. We had used B-1113 for this job before and had been getting 350 pieces per hour. But we soon realized we could machine much faster with "E" Steel, and **we kept increasing speed until we were getting an average of 600 parts per hour. That's a 71% production increase!**

"Next thing we discovered was that our tools were lasting twice as long and the chips were coming off better with "E" Steel than they did with B-1113. We also found that the finish on the parts had improved from 20% to 25%.

"That's why we've been using "E" Steel. We turn out work much faster and can take on more jobs. Our men like the way "E" Steel machines and our customers get better parts and better service. Everybody benefits!"

Get your copy of the booklet titled "A Progress Report on 'E' Steel." It outlines a series of 11 case histories from machine shops that have used "E" Steel with excellent results. Write for your copy.

*Based on an actual case history.

"E" Steel (U.S. Pat. No. 2,484,231) is easily identified by the distinctive blue color on the end of every bar.

Jones & Laughlin Steel Corporation
403 Jones & Laughlin Building
Pittsburgh 30, Penna.

Please send me a free copy of "A Progress Report on 'E' Steel."

Name_____

Title_____

Company_____

Address_____

_____

JONES & LAUGHLIN STEEL CORPORATION

From its own raw materials, J&L manufactures a full line of carbon steel products, as well as certain products in OTISCOLOY *and* JALLOY (*hi-tensile steels*).

PRINCIPAL PRODUCTS: HOT ROLLED AND COLD FINISHED BARS AND SHAPES • STRUCTURAL SHAPES • HOT AND COLD ROLLED STRIP AND SHEETS • TUBULAR, WIRE AND TIN MILL PRODUCTS • "PRECISIONBILT" WIRE ROPE • COAL CHEMICALS

SPOT WELDING TIPS

Resistance Welding knows this symbol. In shops small and large, it means *dependability* in Tips for sound, clean welds—efficient cooling—speedy welding—long tip life—less down time—welding at a saving!

WW Tips are made of alloys of correct physical and electrical properties, precision-machined, water-tight and electrically tight fitting.

Replaceable tips, both straight and offset, WW leak-proof holders, seam welding wheels, electrodes and dies and special alloys for making your own dies are available in numerous standard sizes which you will find in the WW Catalog entitled "Standard Replaceable Welding Tips—Standard Water-Cooled Holders." Weiger Weed & Company, Division of Fansteel Metallurgical Corporation, 11644 Cloverdale Avenue, Detroit 4, Michigan.

Send for this free booklet of latest information on Resistance Welding.

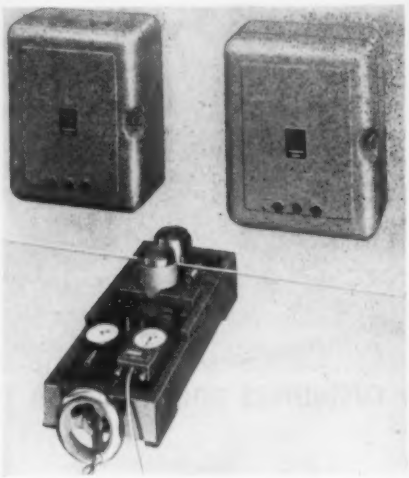
WEIGER-WEED 12801-A

Resistance Welding ELECTRODES

production ideas

Continued

through the extruder, assuring that the proper amount of insulating material is deposited to cover Underwriters' requirements. It saves material by preventing ex-



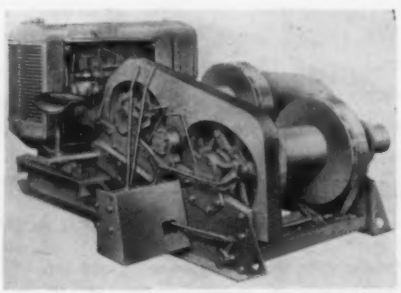
cessive amounts being deposited. The Federal Electricator is used in transferring the measurements to the speed control. The second indicator is used in setting the gage. Signal lights indicate what is going on at all times. *Federal Products Corp.*

For more data insert No. 34 on postcard, p. 37.

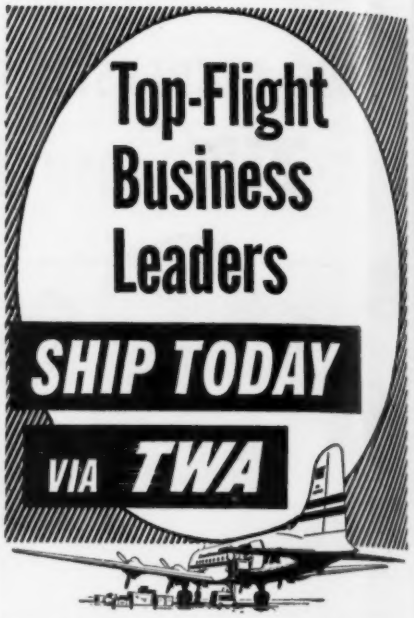
8000-Lb Line Pull Hoist

Safe and positive load control; economy in power consumption.

Clyde's band friction clutches enable the operator of the new hoist to handle full capacity loads with exceptional ease. Equalized linkage gives smooth and even friction



engagement and release. Outside friction surface affords better heat dissipation. Large diameter brakes permit safe and accurate load control by merely "toeing" the brake lever. Shafts rotate on ball bear-



TWA's new, fast, *all-cargo* "Sky Merchant" Fleet speeds your shipments to important markets in U. S. and overseas.

Experienced shippers know the smartest way to ship is via dependable TWA *All-cargo* "Sky Merchants."

Direct routes and connections serve more than 60 important market centers in the U. S. *All-cargo* flights overseas every week end, as well as frequent flights direct to London, Frankfurt, Paris, Zurich, Geneva, Milan, Rome.

Check these outstanding advantages:

1. **Save shipping time.**
2. **Obtain faster, wider distribution.**
3. **Replenish stocks practically overnight.**
4. **Reduce risk of pilferage, damage, loss.**
5. **Save costs on crating and insurance.**
6. **Receive careful, dependable handling of all shipments by TWA cargo specialists.**
7. **And remember, TWA service meets the urgency of every emergency.**

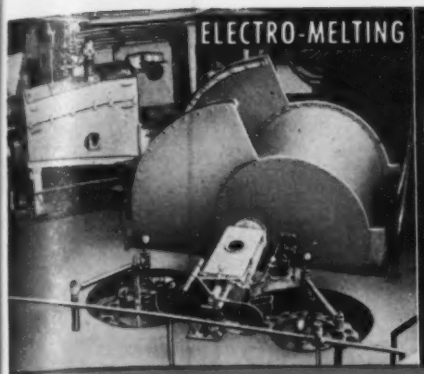
Make a memo—NOW—to phone TWA (Trans World Airlines) for information, rates, schedules, quick pick-up service. Request interesting folder from Cargo Sales Manager, TWA, 60 East 42nd Street, New York 17, N. Y.

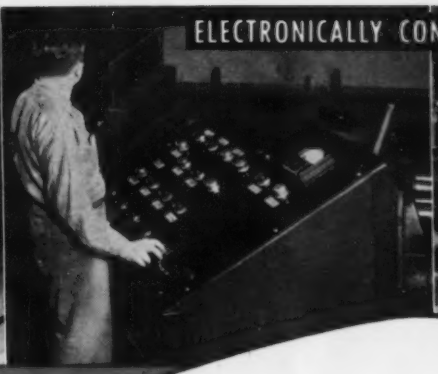
All TWA flights carry Air Mail and Air Cargo.

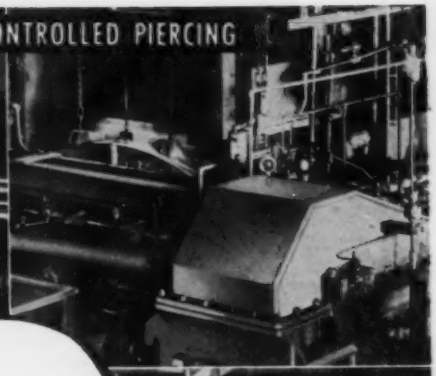
TWA

TRANS WORLD AIRLINES

U.S.A. · EUROPE · AFRICA · ASIA



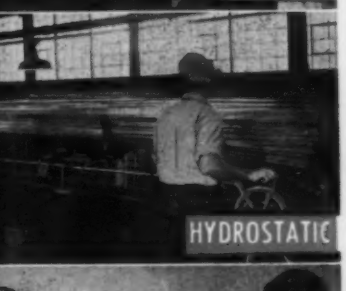


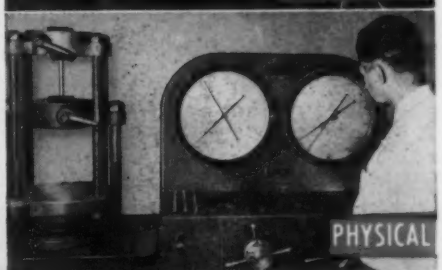


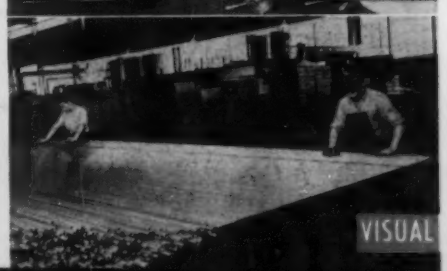
ONE OF AMERICA'S FINEST COMPLETELY INTEGRATED MILLS PROCESSING FROM THE BASIC METAL TO THE FINISHED TUBING... *Producing*

BRASS & COPPER TUBING

for Commercial and Industrial Uses





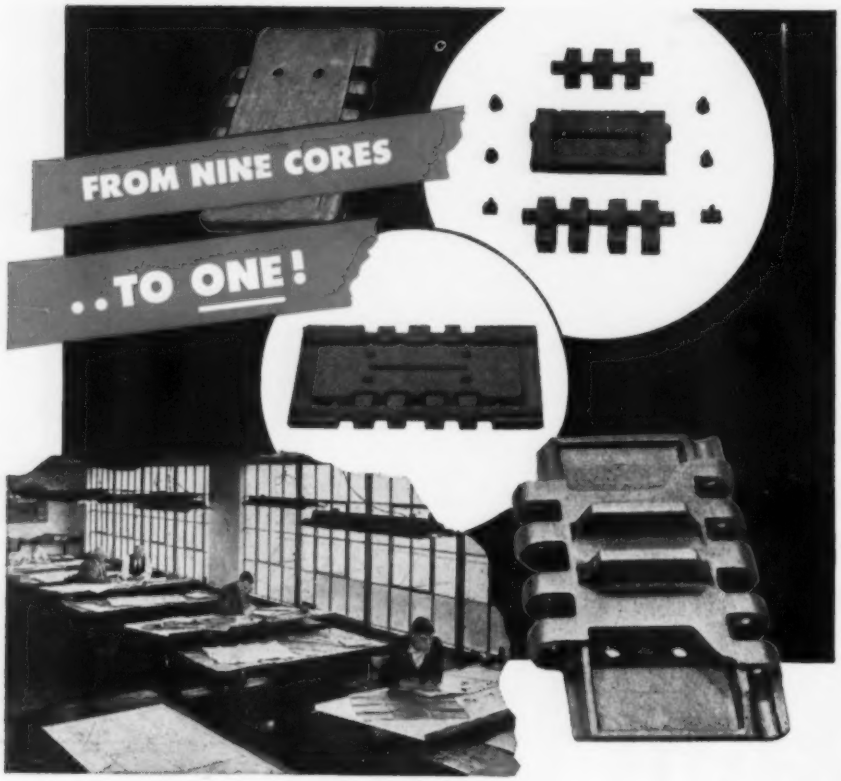


READING BRASS COPPER TUBING

READING
TUBE CORPORATION

Offices and Eastern Distribution Depot
36-12 47th AVE., LONG ISLAND CITY, N. Y.
WORKS: READING, PA. STillwell 6-9200

Producers of
READING LEKTRONEAL COPPER TUBING



UNITCAST ENGINEERING

SAVES ON PRODUCTION COSTS . .
IMPROVES QUALITY!

The illustrated steel casting was formerly made from nine hand made cores, resulting not only in slow production but loss of accuracy. So Unitcast Engineering went to work. By replacing the nine hand made cores with one unit blown core, increased production was balanced, quality improved, and all core holes on every casting were in perfect alignment. Here's just one of the many ways Unitcast facilities provide better customer service, improve the product and keep production costs competitive.

UNITCAST
Corporation
QUALITY STEEL CASTINGS

Give us a chance to offer a "cast steel" answer for your parts problem. Our suggestions while your product is in the design stage will pay continuous dividends. Write or call today. Unitcast Corporation, Steel Casting Division, Toledo 9, Ohio. *In Canada:* Canadian-Unitcast Steel, Ltd., Sherbrooke, Quebec.

UNITCASTINGS ARE FOUNDRY ENGINEERED

production ideas

Continued

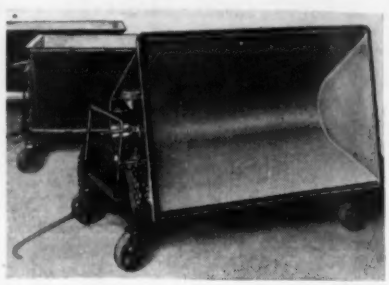
ings to provide a higher degree of hoist efficiency and economy with longer, trouble free service. These Frame-5 hoists are available with gasoline, diesel or electric power. *Clyde Iron Works, Inc.*

For more data insert No. 35 on postcard, p. 37.

Side-Dump Trucks

For use in machine shops; handle dry material—waste, parts, bulk.

The side-dump feature makes disposal of machine chips and scrap easy, eliminating shoveling and other time-consuming operations. The trucks can be drawn by hand



or powered, singly or in trains. They can also be used for temporary storage of materials. The hod is made of sheet metal, welded at the joints, and counterbalanced to render the dumping easy. Frame is structural steel; wheels, iron or rubber. Capacity is approximately 1 cu yd. *Klaas Machine & Mfg. Co.*

For more data insert No. 36 on postcard, p. 37.

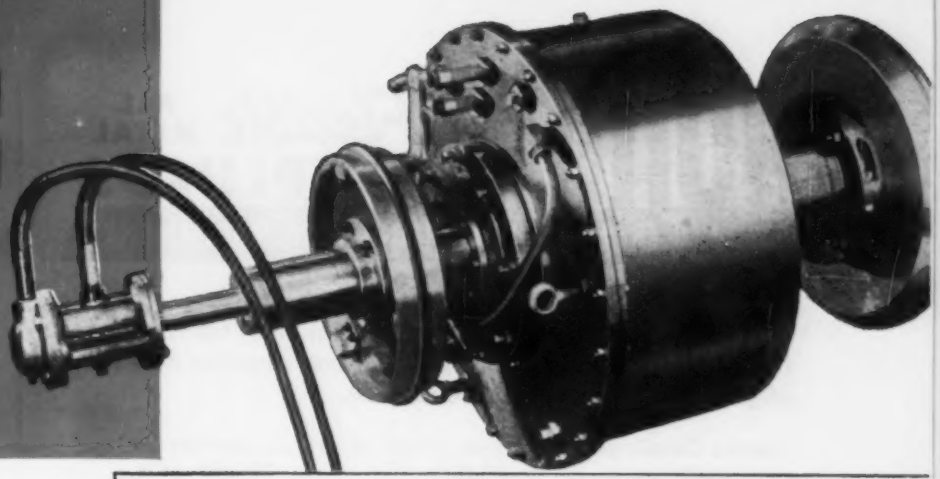
Pressure Valve

Incorporates Shear-Seal principle that gives extreme pressure control.

The Shear-Seal principle points up the fact that to shear off the fluid flow requires the least amount of effort. A pressure balanced, self-aligning, tubular valve seat keeps perfect intimate contact with the mating surface of an optically flat porting disk. Rotary movement of the disk opens and closes the flow passages. Fluid flow is always through the hole in the center of the Shear-Seal, never across sealing surfaces. The wiping and lapping action between sealing members during each operation is said to improve the sealing properties of the valve with use. Bodies are high tensile hydraulic bronze

E LAST WORD IN BE MILL DESIGN

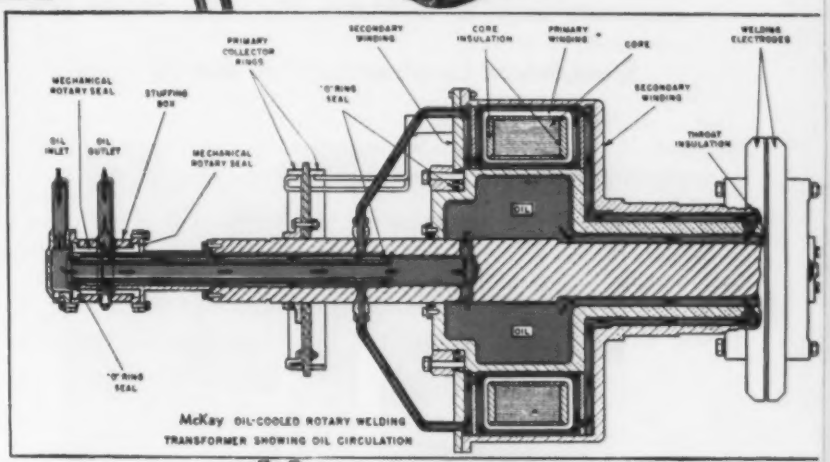
cKay Boosts Operating Ef- iciency and Reduces "Down ime" with New Forced Oil ooled Rotary Transformer



e has always been a demand for a trouble- rotary transformer for resistance weld tube . McKay has recently acquired the exclusive to design and manufacture the rotary trans- er originally built under the Thomas M. ter Patents.

New Design incorporates **Forced Oil Cooling** the following advantages:

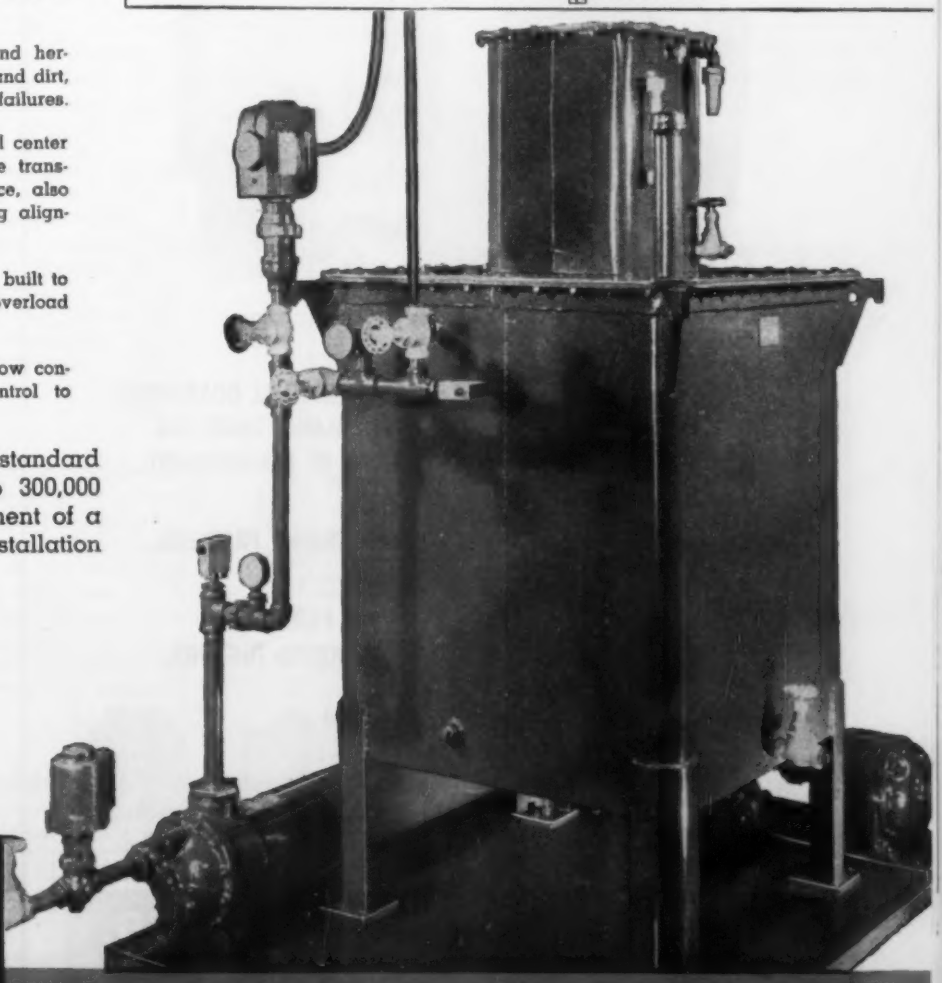
1. **Oil**, which is a non-conductor, is forced into direct contact with the high voltage primary and the inner and outer (copper) secondary castings — thereby removing heat at its source and increasing overall efficiency.
2. Entirely enclosed design of transformer and hermetically sealed oil tank exclude moisture and dirt, thereby eliminating the chief causes for failures.
3. Mechanical loads are all referred to a steel center shaft which extends the full length of the transformer, thereby maintaining perfect balance, also insuring maximum rigidity and maintaining alignment of electrodes.
4. Designed exclusively for tube mill use and built to operate at 100% duty cycle with generous overload capacity.
5. Automatic temperature control of oil and flow controls are interlocked with tube mill control to provide fool-proof operation.



McKay OIL-COOLED ROTARY WELDING TRANSFORMER SHOWING OIL CIRCULATION

rotary transformer is built in several standard s covering a range from 22,000 to 300,000 peres, and is available as a component of a plete tube mill or separately for installation xisting tube mills.

rotary transformer and oil ling system is completely ered by U. S. and Foreign ents issued and pending.



ORE MACHINE

McKAY

OR YOUR MONEY

THE McKAY MACHINE COMPANY

Engineers and Manufacturers of Sheet, Tin, and Strip Mill Equipment

Youngstown, Ohio

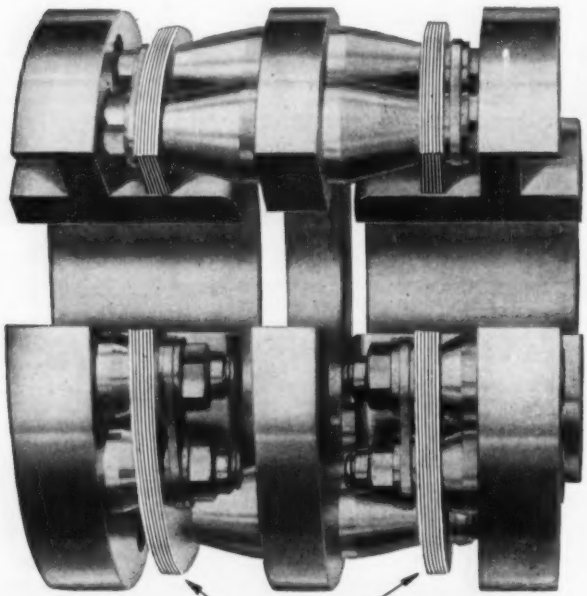
THOMAS *Flexible* ALL METAL COUPLINGS

FOR POWER TRANSMISSION • REQUIRE NO MAINTENANCE

Patented Flexible Disc Rings of special steel transmit the power and provide for parallel and angular misalignment as well as free end float.

Thomas Couplings have a wide range of speeds, horsepower and shaft sizes: ½ to 40,000 HP — 1 to 30,000 RPM.

Specialists on Couplings for more than 30 years



PATENTED FLEXIBLE DISC RINGS

BACKLASH FRICTION WEAR and CROSS-PULL are eliminated LUBRICATION IS NOT REQUIRED!

THE THOMAS PRINCIPLE GUARANTEES PERFECT BALANCE UNDER ALL CONDITIONS OF MISALIGNMENT.

• • •

NO MAINTENANCE PROBLEMS.

• • •

ALL PARTS ARE SOLIDLY BOLTED TOGETHER.

Write for the latest reprint of our Engineering Catalog.

THOMAS FLEXIBLE COUPLING CO.
WARREN, PENNSYLVANIA

production ideas

Continued

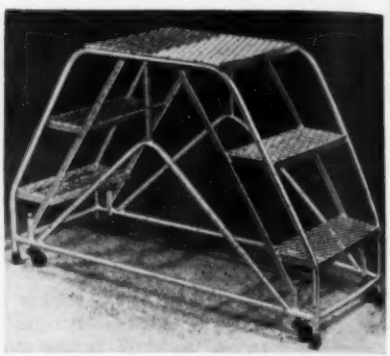
and available with regular in-line porting, straight, or manifold porting. Production models cover a complete range of types and pressures and their service ratings include all common industrial media. *Barksdale Valves.*

For more data insert No. 37 on postcard, p. 37.

Double-Step Ladders

Steps on both ends; two or more people can use ladder at one time.

When no one is on the ladder it rolls easily on swivel casters. The weight of a person, however, causes the spring mounted casters to deflect so that rubber-tipped legs engage the floor and the ladder will not roll. Frame of the ladder is welded tubular steel; steps are expanded steel. The ladder is 30 in. high x 17½ in. wide x 48 in. deep. Top step has a 20-in. tread, others have a 7-in. tread. *Ballymore Co.*



For more data insert No. 38 on postcard, p. 37.

Sealing Washers

Of fabricated compound, seals out air, dust, water and water vapor.

The washer was developed for the automobile and other industries confronted with the problem of sealing bolts, screws and other similar parts. It has strong adherence to faying surfaces, and has proved effective, it is stated, in eliminating squeaks and rattles. The washer is made in standard sizes. Inner dimensions permit it to be slipped freely over the shaft, bolt or screw. As the bolt or screw is tightened, the sealer is forced into the annular space between the bolt and the rim of the hole, effecting a water-tight seal. *Presstite Engineering Co.*

For more data insert No. 39 on postcard, p. 37.

Resume Your Reading on Page 41

IRON AGE *markets and prices*

market briefs and bulletins

higher limits on DO orders—Steel mill officials in the Midwest do not believe increases in DO limits (see story, p. 124) will change their position noticeably on extended DO orders. One mill official states that some consumers were aware of the revisions before the mill and were holding their DO's ready to put them on as soon as the order came out. In fact some consumers holding DO's called up 2 days previous to the order's issuance to place their tonnage. Mills are holding back April quotas until they can be revised. Some mills expect an additional cutback in quotas of 10 pct for April.

stainless steel—The small amount of stainless steel left over for non-rated customers is leading those in the industry to believe the mills are booking way over their DO percentages on stainless. One producer is taking on no more non-rated consumer business, except one product (hot-rolled annealed bars) until the end of the second quarter. It is not likely the mills will open their books on stainless sheet during the third quarter because of the great influx of rated orders and a considerable carryover expected from the second quarter. This comes after the mills didn't open for stainless sheet at all in the second.

super NE steels—Alloy steels containing only half as much strategic alloys as the famous NE steels have been perfected and are being produced to conserve supplies of scarce nickel, molybdenum and chrome, the American Iron & Steel Institute reported early this week. The new alloys contain an average of 0.30 pct nickel, 0.12 moly and one series contains 0.25 chrome and the other series 0.43 chrome. They also make use of boron treatment, which increases strength without reducing toughness. AISI's technical committee on alloy steel has been working on these new steels for several months because of the shortage of alloys caused by the jet program.

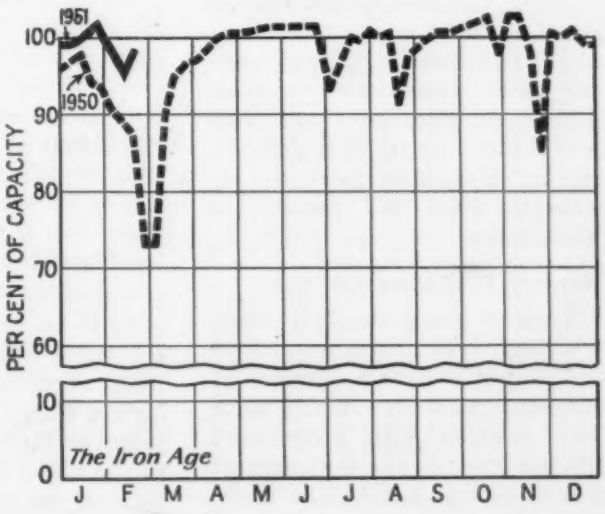
auto cutback—NPA is getting ready to restrict the amount of steel going into the auto industry. They have hinted at a cutback of as much as 40 pct. Last year the industry consumed over 15.5 million tons of finished steel, almost 22 pct of the national total. A 40 pct restriction would channel 6.2 million tons of steel to other uses. Much of the steel consumed in Detroit is cold-rolled sheet, production of which in some cases can be shifted to plate. Because of the danger of large-scale unemployment the initial restriction on auto steel will probably be considerably less than 40 pct.

back to normal—Fully recovered from the recent rail strike, U. S. Steel Co. has all 11 blast furnaces operating in South Chicago, and 11 of 12 operating at Gary. The one furnace at Gary is down for relining. Lack of cars caused by the rail strike is still being felt, but it is expected the pile-up of material at the finishing mills will be eliminated within the next several days.

substitute—Indications are that auto makers are planning to substitute paint for plating. Either aluminum or matching car paint will probably be tried. The paint may be used either with or without an overall plastic coating.

westward ho—Commercial Shearing and Stamp Co. of Chicago and Youngstown, O., will construct a $750,000 plant in Salt Lake City, on a 20-acre site in Industrial Center which it expects to have in operation by August.

Steel Operations**



District Operating Rates—Per Cent of Capacity**

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	West	Buffalo	Cleveland	Detroit	Wheeling	South	Ohio River	St. Louis	East	Aggregate
Feb. 4	94.0*	94.2*	91.0	96.0	95.0*	104.0	22.0*	108.0*	100.0	106.0	88.2	95.1	105.0	93.0*
Feb. 11	96.0	100.5	90.0	98.0	101.7	104.0	86.5	109.0	100.0	104.0	88.0	95.1	112.6	96.5

* Revised.
** Beginning Jan. 1, 1951, operations are based on an annual capacity of 104,229,850 net tons.

nonferrous metals

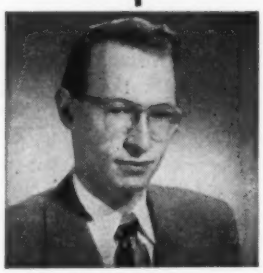
outlook and market activities

NONFERROUS METALS PRICES

	Feb. 7	Feb. 8	Feb. 9	Feb. 10	Feb. 12	Feb. 13
Copper, electro, Conn....	24.50	24.50	24.50	24.50	....	24.50
Copper, Lake delivered...	24.625	24.625	24.625	24.625	....	24.625
Tin, Straits, New York....	$1.825	$1.825	$1.825	....	....	$1.825*
Zinc, East St. Louis	17.50	17.50	17.50	17.50	....	17.50
Lead, St. Louis	16.80	16.80	16.80	16.80	....	16.80

Note: Quotations are going prices.

*Tentative.



by R.Hatschek

New York—Following the general price freeze order, nonferrous scrap dealers boosted their buying prices on many items to a level equal to or near the highest they paid during last December. Conversion deals, authorized by the National Production Authority, have warranted a price of 21½¢ per lb for No. 1 heavy copper.

Prices were revised upwards on most grades of copper and brass, nickel and Monel, tin, and various other miscellaneous grades. Aluminum, zinc, and lead were left alone. The trade is still expecting a definite price list to emanate from the powers in Washington.

Mercury Producers Ask Help

Mercury prices declined somewhat last week to a range of $216 to $220 per 76-lb flask. Owners of domestic mercury mines have been meeting with government officials recently and they suggest a price floor of 2 to 4 years' duration, so that they may be assured of adequate returns for reopening their mines.

At present, U. S. mercury production is at an extremely low ebb, reported to be the lowest level in 100 years, and the price of this commodity has been set wherever the European producers want it. The present high level was reached only after practically all domestic producers were forced out of the market by the underselling of Spanish and Italian interests.

January Output Stable

Production figures of the American Zinc Institute show January output continuing at about the same level that prevailed during the last few months of 1950. Of particular note is the fact that stocks of zinc increased from 8884 tons at the start of the year to 10,212 tons at the end of January. This is the first significant increase in over a year, although there was a minor increase during November.

A possible preview of things to come is an Army Ordnance Dept. DO rated order for 75,000 lb of titanium products from Titanium Metals Corp. of America. With prices as they are today, this will run to about $1 million. Some 60 tons of the metal were produced in 1950, but increased production will no doubt have the effect of reducing the current high costs.

Titanium Boom Coming?

It is already economically practical to use titanium in aircraft for the weight saving and the cost of a more efficient ground force will be more than paid for by the saving of lives in the field. The use and production of titanium can be expected to mushroom in these critical times.

As we go to press, the Singapore tin market is at approximately $1.91 to $1.92 per lb for April delivery. With a domestic ceiling of $1.825 (actually varying according to the individual sellers) an impossible situation has arisen and there has been no trading up to noon Tuesday. It is expected that the tin trade will appeal to the government for a solution to this problem. We continue to tentatively quote the most common ceiling price.

Wilson Asks Tariff Repeal

While brass mills are laying off workers and going to a 4-day work week and users of copper and brass mill products are yelling for relief in the copper shortage, Defense Mobilizer Charles E. Wilson got on record as being against the 2¢ tariff. It is reported that he asked the Senate Banking Committee to use its influence to have the duty repealed. Mr. Wilson contends that the copper shortage is not as acute as some people claim and that the elimination of the tax would permit the import of sufficient supplies of the vital metal.

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32¢; 52S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 75S-O, 75S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 52S, 35.6¢; 24S-O, 24S-OAL, 34.1¢; 75S-O, 75S-OAL, 41.8¢; 0.032 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 52S, 39.8¢; 24S-O, 24S-OAL, 41.7¢; 75S-O, 75S-OAL, 52.2¢.

Plate: ¼ in. and heavier: 2S, 3S-F, 28.3¢ 4S-F, 30.2¢; 52S-F, 31.8¢; 61S-O, 30.8¢; 24S-O, 24S-OAL, 32.4¢; 75S-O, 75S-OAL, 38.3¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.2¢ to 74.5¢; 12 to 14, 36.9¢ to 89¢; 24 to 26, 39.6¢ to $1.16; 36 to 38, 47.2¢ to $1.70.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 39.5¢; cold-finished, 0.375 to 3 in., 2S-F, 3S-F, 40.5¢ to 35¢.

Screw Machine Stock: Rounds, 11S-T3, ⅛ to 11/32 in., 53.5¢ to 42¢; ⅜ to 1½ in., 41.5¢ to 39¢; 1 9/16 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in., 2S, 39.5¢ to 29¢; 52S, 48¢ to 35¢; 56S, 51¢ to 42¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 75S-T6, 84¢ to 67.5¢.

Extruded Tubing, Rounds: 63S-T5, OD in in.: 1¼ to 2, 37¢ to 54¢; 2 to 4, 33.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 43.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., $1.142; 96 in., $1.522; 120 in., $1.902; 144 in., $2.284. Gage 0.024 in. x 28 in., 72 in., $1.379; 96 in., $1.839; 120 in., $2.299; 144 in., $2.759. Coiled Sheet: 0.019 in. x 28 in., 28.2¢ per lb.; 0.024 in. x 28 in., 26.9¢ per lb.

Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, ¼ in. 63¢; 3/16 in. 65¢; ⅛ in. 67¢; B & S Gage 10, 68¢; 12, 72¢; 14, 78¢; 16, 85¢; 18, 93¢; 20, $1.05; 22, $1.27; 24, $1.67. Specification grade higher. Base: 30,000 lb.

Extruded Round Rod: M, diam in., ¼ to 0.311 in., 74¢; ½ to ¾ in., 57.5¢; 1¼ to 1.749 in., 53¢; 2½ to 5 in., 48.5¢. Other alloys higher. Base: Up to ¾ in. diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated, 0.10 to 0.11 lb, 3.5 in., 62.3¢; 0.22 to 0.25 lb, 5.9 in., 59.3¢; 0.50 to 0.59 lb, 8.6 in., 56.7¢; 1.8 to 2.59 lb, 19.5 in., 53.8¢; 4 to 6 lb, 28 in., 49¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ in. to 5/16, $1.40; 5/16 to ⅜, $1.26; ½ to ⅝, 93¢; 1 to 2 in., 76¢; 0.165 to 0.219, ⅜ to ¾, 61¢; 1 to 2 in., 57¢; 3 to 4 in., 56¢. Other alloys higher. Base, OD in in.; Up to 1½ in., 10,000 lb; 1½ in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheet and strip, HR or CR, $15; Plate, HR, $12; Wire, rolled and/or drawn, $10; Bar, HR or forged, $6; Forgings, $6.

Nickel and Monel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel
Sheets, cold-rolled	71½	57
Strip, cold-rolled	77½	60
Rods and bars	67½	55
Angles, hot-rolled	67½	55
Plates	69½	56
Seamless tubes	100½	90
Shot and blocks	....	50

Copper, Brass, Bronze

(Freight prepaid on 200 lb includes duty)

	Sheets	Rods	Extruded Shapes
Copper	41.03	....	40.63
Copper, h-r	....	36.88	....
Copper, drawn	....	38.13	....
Low brass	39.15	38.84	....
Yellow brass	38.28	37.97	....
Red brass	40.14	39.83	....
Naval brass	43.08	38.61	38.07
Leaded brass	....	32.63	36.70
Com'l bronze	41.13	40.82	....
Mang. bronze	45.96	40.65	41.41
Phos. bronze	60.20	60.45	....
Muntz metal	40.43	36.74	37.99
Ni silver, 10 pct	49.27	51.49	....
Arch. bronze	....	....	35.11

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	19.00
Aluminum pig	18.00
Antimony, American, Laredo, Tex.	42.00
Beryllium copper, 3.75-4.25% Be	$1.56
Beryllium aluminum 5% Be, Dollars per lb contained Be	$69.00
Bismuth, ton lots	$2.25
Cadmium, del'd	$2.55
Cobalt, 97-99% (per lb)	$2.10 to $2.17
Copper, electro, Conn. Valley	24.50
Copper, Lake, delivered	24.625
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$200
Lead, St. Louis	16.80
Lead, New York	17.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb	24.50
Magnesium, sticks, 100 to 500 lb	42.00 to 44.00
Mercury, dollars per 76-lb flask, f.o.b. New York	$216-$220
Nickel, electro, f.o.b. New York	53.55
Nickel oxide sinter, f.o.b. Copper Cliff, Ont., contained nickel	46.75
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$90 to $93
Silver, New York, cents per oz.	90.16
Tin, New York	$1.825
Titanium, sponge	$5.00
Zinc, East St. Louis	17.50
Zinc, New York	18.22
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	29.00
No. 120	28.50
No. 123	28.00
80-10-10 ingot	
No. 305	35.00
No. 315	32.00
88-10-2 ingot	
No. 210	46.25
No. 215	43.25
No. 245	36.00
Yellow ingot	
No. 405	25.00
Manganese bronze	
No. 421	29.75

Aluminum Ingot

(Cents per lb, 30,000 lb lots)

95-5 aluminum-silicon alloys	
0.30 copper, max.	33.25-34.25
0.60 copper, max.	33.00-34.00
Piston alloys (No. 122 type)	30.50-31.00
No. 12 alum. (No. 2 grade)	30.00-30.50
108 alloy	30.25-30.75
195 alloy	31.25-31.75
13 alloy	33.50-34.00
ASX-679	30.50-31.00

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	32.00-32.50
Grade 2—92-95%	30.25-30.75
Grade 3—90-92%	29.25-29.75
Grade 4—85-90%	28.75-29.25

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	39⅛
Electrodeposited	33⅜
Rolled, oval, straight, delivered	38⅞
Forged ball anodes	43
Brass, 80-20	
Cast, oval, 15 in. or longer	34¾
Zinc, oval	26½
Ball anodes	25½
Nickel 99 pct plus	
Cast	70.50
Rolled, depolarized	71.50
Cadmium	$2.80
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79½

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum	52.15
Copper sulfate, 99.5 crystals, bbl.	12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed	20½
Nickel chloride, 375 lb drum	27½
Silver syanide, 100 oz lots, per oz.	67¼
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drums	45.85

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add ⅛¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	23	22¼
Yellow Brass	20½	18¾
Red brass	21½	20¾
Comm. bronze	21¾	21
Mang. bronze	19½	18⅝
Brass rod ends	19⅞	....

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	21.50
No. 2 copper wire	20.00
Light copper	19.00
Refinery brass	19.50*
Radiators	15.00

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	23.00
No. 2 copper wire	22.00
Light copper	21.00
No. 1 composition	22.00
No. 1 comp. turnings	21.50
Rolled brass	18.50
Brass pipe	20.50
Radiators	17.50
Heavy yellow brass	17.00

Aluminum

Mixed old cast	18½—19
Mixed new clips	20½
Mixed turnings, dry	18½
Pots and pans	18½—19
Low copper	21½—22

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	21½
No. 2 heavy copper and wire	20
Light copper	19
New type shell cuttings	19
Auto radiators (unsweated)	15½—16
No. 1 composition	19 —19½
No. 1 composition turnings	18½—19
Clean red car boxes	17½—18
Cocks and faucets	17½—18
Mixed heavy yellow brass	14½—15
Old rolled brass	15½—16
Brass pipe	18½—19
New soft brass clippings	17½—18
Brass rod ends	16½—17
No. 1 brass rod turnings	16 —16½

Aluminum

Alum. pistons and struts	12 —13
Aluminum crankcases	15 —16
2S aluminum clippings	18½—19½
Old sheet and utensils	15 —16
Borings and turnings	12½—13
Misc. cast aluminum	15 —16
Dural clips (24S)	15 —16

Zinc

New zinc clippings	14½—15
Old zinc	11 —11¼
Zinc routings	8½— 9
Old die cast scrap	8 — 8¼

Nickel and Monel

Pure nickel clippings	90 —100
Clean nickel turnings	80 —90
Nickel anodes	90 —100
Nickel rod ends	90 —100
New Monel clippings	30 —35
Clean Monel turnings	20 —25
Old sheet Monel	25 —30
Inconel clippings	30 —35
Nickel silver clippings, mixed	16 —18
Nickel silver turnings, mixed	15 —16

Lead

Soft scrap, lead	15 —15¼
Battery plates (dry)	8¾— 9

Magnesium

Segregated solids	9 —10
Castings	5½— 6½

Miscellaneous

Block tin	120 —125
No. 1 pewter	80 —85
No. 1 auto babbitt	75 —80
Mixed common babbitt	12¼—12½
Solder joints	23 —24
Siphon tops	75 —80
Small foundry type	18¼—18½
Monotype	16¾—17
Lino. and stereotype	16½—16¾
Electrotype	15 —15½
Hand picked type shells	11¼—11¾
Lino. and stereo. dross	8¾— 9
Electro. dross	6¾— 7

SCRAP *iron and steel*

markets
prices
trends

Scrap men seek clarification on pricing order . . . Light needed on some vague clauses and inequities . . . Market activity sags.

What the scrap trade needs is a little light on the subject of iron and steel scrap pricing. When, bit by bit, official interpretations and rulings are extracted from Washington the dead market of last week may quicken. Clarification must come quickly for capacity steel output is at stake.

The trade last week spent most of its time in interpreting the order and trying to arrive at something favorable for them. But there was too much room for doubt, and scrappies then wondered if OPS would later swat their ideas aside. Others saw only painful tidings in small print clauses and sent up a howl.

Reports of order inequities and fuzzy wording came from all scrap centers. The chief complaint in Pittsburgh was against the ban on broker-to-broker commissions and split commissions.

PITTSBURGH—The need for clarification and amendment of the scrap price control order is apparent. A rereading of the schedule has brought to light some apparent inequities and loose wording that ESA will be asked to rectify. Number one on the list is the prohibition against broker-to-broker commissions and split commissions. Some brokers say they will be seriously handicapped if the restriction is allowed to stand. The trade would also like more specific definitions on grading. Another question to be answered is whether preparation fees may be split. The preparation allowance of $2.50 for low phos is considered by many to be too low. Very little trading has been done under the new schedule. Yards were virtually swept clean in last week's rush to ship before the controlled prices became effective.

CHICAGO—Some quarters in the trade expect scrap movement during February to be slow until various points in the recent price control order are clarified. Shipments held up because of the recent rail strike started to pick up early in the week although the situation was far from normal. The bulk of material moving was that loaded before the recent control order. The problem facing members of the trade is the determination of what grades consumers will accept under the price control order and from what shipping points they will accept them.

PHILADELPHIA—Trade reaction to last week's price rollback order was generally favorable. The prices are pretty close to what was anticipated in this area. There is one question: Will openhearths be permitted to buy electric furnace scrap? It is felt that the intention was that the openhearths would not be allowed to do this but the order is not clear. A combination of the scrap order, extremely cold weather, the car shortage and the switchmen's strike contributed to a very slow week in this area. Mills are poorly supplied.

NEW YORK—Brokers here are waiting for Washington to give official interpretation to ambiguous clauses of the scrap pricing order. Meanwhile the market is sluggish after last week's bolt to ship everything but the kitchen sink before deadline time. On the limited sales going on now, some complain they don't know if prices will stand up under OPS interpretation of the order. The market will remain dull until the smoke has been cleared through OPS rulings.

DETROIT—Two situations have developed here on which interpretations are expected momentarily. By using a Cleveland base and shipping by water to Cleveland, mills in Pittsburgh and Cleveland, it appears, might pay $40.20 for scrap as compared with a $39.05, Detroit ceiling. Another issue concerns the $2 differential for electric furnace bundles. Since few local scrap sources prepare bundles 14 x 14 x 20, most of the Detroit bundles are openhearth size. However, some electric furnace buyers here have argued their bundles should be regarded as electric furnace material. The market is quiet. Weather has hindered scrap movements. Lists are expected to go under allocation late this month at ceiling prices.

CLEVELAND—One major consumer in this district was getting allocations and the market generally was breaking all records in reverse. Yards are pretty well cleaned out as a result of the feverish activity of the past month and at the moment, the market is practically inert. Foundries need tonnage and some may have to be allocated within 30 days, according to trade sources. The market seems to be in an interim period which may last anywhere from 2 weeks to a month, during which little tonnage will move. Biggest problem will be making supply adequate to the demand.

ST. LOUIS—Most railroads in the St. Louis industrial district are revising their prices on lists for which bids were submitted by brokers in accordance with ceilings. One road has torn up all bids and is starting all over again, and consumers are ready to take on the scrap most of them delayed buying because of the imminence of ceilings. The movement from the country has been sharply curtailed for lack of cars since the strike embargo was lifted, and cold weather has halted collections and processing.

BIRMINGHAM—The scrap market here has been fairly active since the price rollback, users who had been holding off buying in anticipation of such action going back into the market to replenish stockpiles, many of which were badly depleted. Dealers are finding offerings in the Southeast plentiful and, in addition to supplying customers in the area, are shipping to northern mills.

CINCINNATI—Trading is at low ebb here in the wake of the new scrap price schedule. Little tonnage is moving other than plant scrap which is going into dealers' yards. Foundries need tonnage but yard inventories of cast grades are reported low. The lack of activity here is not a matter of price but a hopeful expectancy that some amendments will be made to the order, particularly in preparation charges. Little trading is expected here for a month.

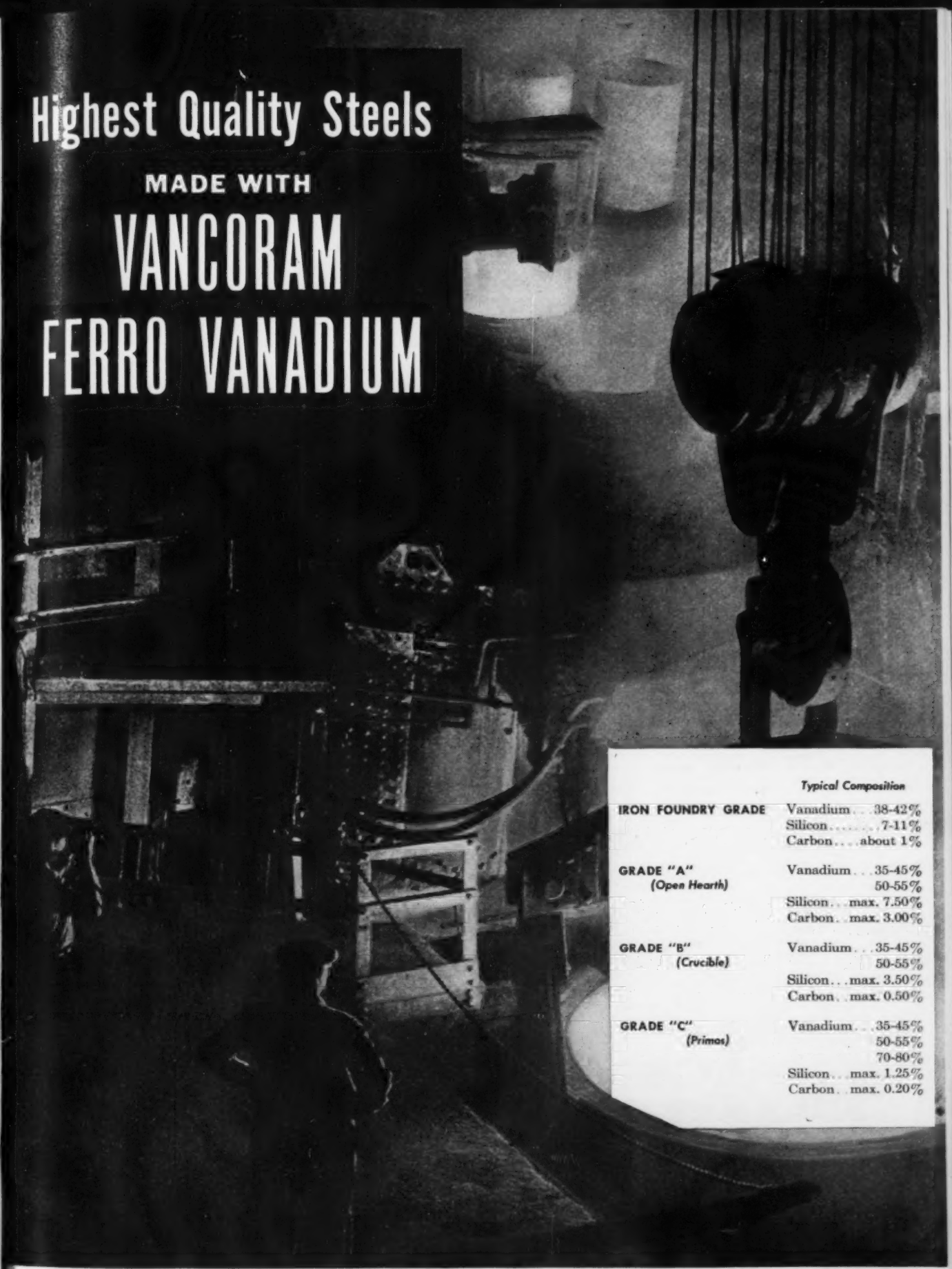
BOSTON—Activity in the local market was good and dealers generally expressed satisfaction with operation during the first week of controlled prices. It is generally felt ceilings are fair, and all items moved at ceiling price except unstripped motor blocks which sold at $38 to $39.

BUFFALO—Interest in the scrap market here shifted from government controls to a drastic shrinkage in supplies. The rail strike and sub-zero temperatures added to processing problems. Collections were off as some cars were weeks overdue at dealers' yards. Mills continue to draw on reserve stocks to maintain operations. Orders placed at the higher pre-controlled levels were carried over at the reduced prices.

Highest Quality Steels

MADE WITH

VANCORAM FERRO VANADIUM



	Typical Composition
IRON FOUNDRY GRADE	Vanadium . . . 38-42% Silicon . . . . . 7-11% Carbon . . . . about 1%
GRADE "A" *(Open Hearth)*	Vanadium . . . 35-45% 50-55% Silicon . . . max. 7.50% Carbon . . max. 3.00%
GRADE "B" *(Crucible)*	Vanadium . . . 35-45% 50-55% Silicon . . . max. 3.50% Carbon . . max. 0.50%
GRADE "C" *(Primos)*	Vanadium . . . 35-45% 50-55% 70-80% Silicon . . max. 1.25% Carbon . . max. 0.20%

VANADIUM CORPORATION OF AMERICA

420 LEXINGTON AVENUE, NEW YORK 17, N. Y. • DETROIT • CHICAGO • CLEVELAND • PITTSBURGH

MAKERS OF FERRO-ALLOY

VANCORAM

CHEMICALS AND METALS

Iron and Steel SCRAP PRICES

(Maximum basing point prices, per gross ton, as set by OPS, effective Feb. 7, 1951. Shipping point and delivered prices calculated as shown below.)

Switching Charge (Dollars per gross ton) →	Pittsburgh $0.99 Johnstown .75 Brackenridge .53 Butler .65 Midland .75 Monessen .51 Sharon .75	Youngstown .75 Canton .51 Steubenville .51 Warren .75 Weirton .70	Cleveland .76 Buffalo .83 Cincinnati .65 Middletown .26	Chicago 1.34 Claymont .79 Coatesville .50 Conshohocken .20 Harrisburg .51 Phoenixville .51	Sparrows Pt. .20 Bethlehem .52 Ashland, Ky. .47 Kokomo, Ind. .51 Portsmouth, O. .51	St. Louis .51	Detroit .95 Duluth .50	Kansas City .78	Birmingham .50 Alabama City .43 Atlanta .51	Minneapolis .33	Houston .57	Los Angeles .65 Pittsburg, Cal. .52 Portland, Ore. .83 San Francisco Seattle
Basing Points →												
GRADES												
No. 1 heavy melting	$44.00	$44.00	$43.00	$42.50	$42.00	$41.00	$40.00	$39.50	$39.00	$38.00	$37.00	$35.00
No. 2 heavy melting	42.00	42.00	41.00	40.50	40.00	39.00	38.00	37.50	37.00	36.00	35.00	33.00
No. 1 busheling	44.00	44.00	43.00	42.50	42.00	41.00	40.00	39.50	39.00	38.00	37.00	35.00
No. 1 bundles	44.00	44.00	43.00	42.50	42.00	41.00	40.00	39.50	39.00	38.00	37.00	35.00
No. 2 bundles	41.00	41.00	40.00	39.50	39.00	38.00	37.00	36.50	36.00	35.00	34.00	32.00
Machine shop turnings	34.00	34.00	33.00	32.50	32.00	31.00	30.00	29.50	29.00	28.00	27.00	25.00
Mixed borings and turnings	38.00	38.00	37.00	36.50	36.00	35.00	34.00	33.50	33.00	32.00	31.00	29.00
Shoveling turnings	38.00	38.00	37.00	36.50	36.00	35.00	34.00	33.50	33.00	32.00	31.00	29.00
Cast iron borings	38.00	38.00	37.00	36.50	36.00	35.00	34.00	33.50	33.00	32.00	31.00	29.00
No. 1 chemical borings	41.00	41.00	40.00	39.50	39.00	38.00	37.00	36.50	36.00	35.00	34.00	32.00
Forge crops	51.50	51.50	50.50	50.00	49.50	48.50	47.50	47.00	46.50	45.50	44.50	42.50
Bar crops and plate	49.00	49.00	48.00	47.50	47.00	46.00	45.00	44.50	44.00	43.00	42.00	40.00
Punchings and plate	46.50	46.50	45.50	45.00	44.50	43.50	42.50	42.00	41.50	40.50	39.50	37.50
Electric furnace bundles	46.00	46.00	45.00	44.50	44.00	43.00	42.00	41.50	41.00	40.00	39.00	37.00
Cut struct., plate, 3 ft and less	47.00	47.00	46.00	45.50	45.00	44.00	43.00	42.50	42.00	41.00	40.00	38.00
Cut struct., plate, 2 ft and less	49.00	49.00	48.00	47.50	47.00	46.00	45.00	44.50	44.00	43.00	42.00	40.00
Cut struct., plate, 1 ft and less	50.00	50.00	49.00	48.50	48.00	47.00	46.00	45.50	45.00	44.00	43.00	41.00
Heavy turnings	43.00	43.00	42.00	41.50	41.00	40.00	39.00	38.50	38.00	37.00	36.00	34.00
No. 1 RR heavy melting	46.00	46.00	45.00	44.50	44.00	43.00	42.00	41.50	41.00	40.00	39.00	37.00
Scrap rails, random lengths	48.00	48.00	47.00	46.50	46.00	45.00	44.00	43.50	43.00	42.00	41.00	39.00
Scrap rails, 3 ft and less	51.00	51.00	50.00	49.50	49.00	48.00	47.00	46.50	46.00	45.00	44.00	42.00
Scrap rails, 2 ft and less	52.00	52.00	51.00	50.50	50.00	49.00	48.00	47.50	47.00	46.00	45.00	43.00
Scrap rails, 18 in. and less	54.00	54.00	53.00	52.50	52.00	51.00	50.00	49.50	49.00	48.00	47.00	45.00
Rerolling rails	53.00	53.00	52.00	51.50	51.00	50.00	49.00	48.50	48.00	47.00	46.00	44.00
Uncut tires	48.00	48.00	47.00	46.50	46.00	45.00	44.00	43.50	43.00	42.00	41.00	39.00
Cut tires	51.00	51.00	50.00	49.50	49.00	48.00	47.00	46.50	46.00	45.00	44.00	42.00
Cut boisters and side frames	49.00	49.00	48.00	47.50	47.00	46.00	45.00	44.50	44.00	43.00	42.00	40.00
RR specialties	51.00	51.00	50.00	49.50	49.00	48.00	47.00	46.50	46.00	45.00	44.00	42.00
Solid steel axles	58.00	58.00	57.00	56.50	56.00	55.00	54.00	53.50	53.00	52.00	51.00	49.00
No. 3 steel wheels	51.00	51.00	50.00	49.50	49.00	48.00	47.00	46.50	46.00	45.00	44.00	42.00

SWITCHING DISTRICTS—These basing points include the indicated switching districts: Pittsburgh; Bessemer, Homestead, Duquesne, Munhall. Cincinnati; Newport. St. Louis; Granite City, East St. Louis, Madison. San Francisco; South San Francisco, Niles, Oakland. Claymont; Chester. Chicago; Gary. Los Angeles; Firestone.

SHIPPING POINT PRICES (Except RR scrap)—For shipping points within basing points, the ceiling shipping point price is the basing point price, less switching charge. The ceiling for shipping points outside basing points is the basing point price yielding the highest shipping point price, less the lowest established freight charge. Dock charge, where applicable, is $1.25 per gross ton except: Memphis, 95¢; Great Lakes ports, $1.50, and New England ports, $1.75. Maximum shipping point price on No. 1 heavy melting steel in New York City is $36.99 per gross ton with set differentials for other grades. Hudson and Bergen County, N. J., shipping point prices are computed from Bethlehem basing point. All New Jersey computations use all-rail transport. Ceiling need not fall below $32 per gross ton for No. 1 heavy melting steel, with set differentials for other grades. Cast scrap shipping point prices are given in table.

DELIVERED PRICES (Except RR scrap)—Ceiling is the shipping point price plus actual freight charge, tax included. Dock charges, where applicable, are as above.

DELIVERED PRICES (RR scrap)—Ceiling on-line price of a RR operating in a basing point is the top in the highest priced basing point in which the RR operates. For off-line prices, RR's not operating in basing point, non-operating RR's, and RR scrap sold by someone other than a RR see text of order, THE IRON AGE, Feb. 8, 1951, p. 137-C.

UNPREPARED SCRAP—Maximum is $8 per gross ton less than prepared base grades (No. 1 heavy & No. 1 RR heavy). Scrap suitable for compressing into No. 1 bundles is $6 less than No. 1 bundles; suitable for compressing into No. 2 bundles, $8 less than No. 2 bundles. For cast material requiring special preparation, price is breakable cast less preparation costs.

COMMISSIONS—Brokers are permitted a maximum of $1 per gross ton commission which must be separate on the bill.

ALLOY PREMIUMS—Alloy extras are permitted on: nickel, molybdenum, manganese, silicon, and chromium. Quantities and charges may be found in the order, THE IRON AGE, Feb. 8, 1951, p. 137-D.

RESTRICTIONS ON USE—Ceiling prices on some scrap items may fluctuate with use by consumers. If some scrap is purchased for its established specialized use, the ceiling price set in the order stands. But if some special grades are purchased for other uses, the ceiling price charge shall be the price of the scrap grade being substituted. For example, the price established for Grade 28 (wrought iron) may be charged only when sold to a producer of wrought iron. Otherwise the ceiling price shall not exceed the ceiling price for the corresponding grade of basic openhearth. Restrictions on use are placed on the following grades: Chemical borings, wrought iron, rerolling rails, cupola cast, clean auto cast, and malleable. Ceiling prices on billet bloom and forge crops, alloy-free turnings, and heavy turnings may be charged only when shipped directly from industrial producer.

CEILING DELIVERED PRICES FOR TRUCK SHIPMENT OF ALL STEEL OR CAST IRON SCRAP—If delivery is made by truck public carrier, ceiling delivered price shall be the ceiling shipping point price (or in the case of railroad scrap, the pertinent ceiling on-line price) plus the actual public carrier charge. Scrap delivered by shipper or broker trucks shall have a ceiling delivered price consisting of the ceiling shipping point price (or railroad ceiling on-line price) plus the established rail carload freight rate for shipping scrap from the rail siding nearest the point of delivery. Transportation charges for delivery in a shipper or broker truck shall not exceed $4 and need not fall below $2.50.

OPS Correction on CPR 5

In F. R. Doc. 51-1937 (16 F. R. 1061), the fourth sentence of Section 23 (a) (5) reading: "May not include galvanized, vitreous enameled stock tin plate, terne plate, or other metal coated material" is corrected to read as follows: "May include galvanized, but not vitreous enameled stock tin plate, terne plate, or other metal coated material."

(a) Michael V. DiSalle
Director of
Price Stabilization

Cast Scrap

(F.o.b. all shipping points)

Cupola cast	$49.00
Charging box cast	47.00
Heavy breakable cast	45.00
Cast iron brake shoes	41.00
Stove plate	46.00
Clean auto cast	52.00
Unstripped motor blocks	43.00
Cast iron carwheels	47.00
Malleable	55.00
Drop broken machinery cast	52.00

Boston, unstripped motor blocks....$38 to $39

CEILING SHIPPING POINT, CEILING ON-LINE PRICES FOR ALL CAST IRON SCRAP—The above table shows blanket ceiling prices per gross ton for all cast iron scrap, f.o.b. shipping points.

CEILING DELIVERED PRICES—The ceiling delivered price for shipment by rail, vessel, or both of dealer and industrial cast iron scrap shall be the shipping point price plus the actual transportation charges to the point of delivery. Public dock charges may be added to actual transportation charges. Where dock facilities are owned or controlled by the shipper, certain fixed charges apply. (See steel scrap footnote.)

CEILING DELIVERED PRICES FOR TRUCK SHIPMENT OF ALL STEEL OR CAST IRON SCRAP—(See steel scrap footnote).

RESTRICTIONS ON USE—(See steel scrap footnote).

CEILING INTRANSIT PREPARATION CHARGES (Dollars per gross ton)

No. 1 heavy; No. 2 heavy; No. 1 RR heavy; No. 2 RR heavy; No. 1 busheling; No. 2 bundles; electric furnace bundles	$ 8.00
No. 1 bundles; briquetted turnings or cast iron borings; No. 1 RR sheet scrap	6.00
Crushing machine shop turnings	3.00
Bar crops and plate; punchings and plate; structural and plate, 1 ft & less, and 3 ft and less; foundry steel, 1 ft & less and 2 ft & less; wrought iron	10.00
Rails, 3 ft & less; cut tires; cut bolsters & side frames	4.00
Rails, 2 ft & less	5.00
Rails, 18 in. & less	7.00

malleable scrap

use:

Malleable iron scrap is the principal ingredient used in the making of new malleable castings. These castings are very ductile and can absorb tremendous pressures or heavy hammering without fracturing.

Malleable castings have a varied range of applications and are widely used in the railroad, agricultural and automotive industries.

source:

Scrap malleable parts of automobiles, railroad cars, pipe fittings, etc.

This is one of a series illustrating the many and varied types of scrap required in the making of iron and steel for every use. Our national organization, manned by competent personnel, is ready to meet your every scrap problem.

specifications:

The scrap must be prepared to meet the physical requirements of the cupola and air furnaces, being no longer than 1/3 the diameter of the cupola. Air furnaces can use slightly larger pieces.

Malleable scrap must be free of metallic alloys, chrome and sulphur because these chemicals produce "hard spots" in the castings.

Rust is very undesirable because of its hydrogen and oxygen properties, upsetting the calculations of the metallurgist.

CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP

LURIA BROTHERS AND COMPANY, INC.

PLANTS

LEBANON, PENNA.
READING, PENNA.
DETROIT (ECORSE), MICHIGAN
MODENA, PENNA.
PITTSBURGH, PENNA.
ERIE, PENNA.

MAIN OFFICE

LINCOLN-LIBERTY BLDG.
Philadelphia 7, Penna.

OFFICES

BIRMINGHAM, ALA. Empire Building	CHICAGO, ILLINOIS 100 W. Monroe St.	HOUSTON, TEXAS 1114 Texas Av. Bldg.	PITTSBURGH, PA. Oliver Building
BOSTON, MASS. Statler Building	CLEVELAND, OHIO 1022 Midland Bldg.	LEBANON, PENNA. Luria Building	PUEBLO, COLORADO 334 Colorado Bldg.
BUFFALO, N. Y. Genesee Building	DETROIT, MICHIGAN 2011 Book Building	NEW YORK, N. Y. 100 Park Avenue	READING, PENNA. Luria Building

ST. LOUIS, MISSOURI
2110 Railway Exchange Bldg.

SAN FRANCISCO, CALIFORNIA
Pacific Gas & Elec. Co., Bldg.

LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices

Steel prices in this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel: (cents per pound)	Feb. 13, 1951	Feb. 6, 1951	Jan. 16, 1951	Feb. 14, 1950
Hot-rolled sheets	3.60	3.60	3.60	3.35
Cold-rolled sheets	4.35	4.35	4.35	4.10
Galvanized sheets (10 ga)	4.80	4.80	4.80	4.40
Hot-rolled strip	3.50	3.50	3.50	3.25
Cold-rolled strip	4.75	4.75	4.75	4.21
Plate	3.70	3.70	3.70	3.50
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R-strip (No. 302)	36.50	36.50	36.50	33.00
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes.	$7.50	$7.50	$7.50	$7.50
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.60
Special coated mfg. ternes	6.35	6.35	6.35	6.50
Bars and Shapes: (cents per pound)				
Merchant bars	3.70	3.70	3.70	3.45
Cold finished bars	4.55	4.55	4.55	*4.145
Alloy bars	4.30	4.30	4.30	3.95
Structural shapes	3.65	3.65	3.65	3.40
Stainless bars (No. 302)	31.25	31.25	31.25	28.50
Wrought iron bars	9.50	9.50	9.50	9.50
Wire: (cents per pound)				
Bright wire	4.85	4.85	4.85	4.50
Rails: (dollars per 100 lb)				
Heavy rails	$3.60	$3.60	$3.60	$3.40
Light rails	4.00	4.00	4.00	3.75
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$56.00	$56.00	$56.00	$54.00
Slabs, rerolling	56.00	56.00	56.00	54.00
Forging billets	66.00	66.00	66.00	63.00
Alloy blooms billets, slabs	70.00	70.00	70.00	66.00
Wire Rod and Skelp: (cents per pound)				
Wire rods	4.10	4.10	4.10	3.85
Skelp	3.35	3.35	3.35	3.15

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*

Pig Iron: (per gross ton)	Feb. 13, 1951	Feb. 6, 1951	Jan. 16, 1951	Feb. 14, 1950
No. 2 foundry, del'd Phila.	$57.77	$57.77	$57.77	$50.42
No. 2, Valley furnace	52.50	52.50	52.50	46.50
No. 2, Southern Cin'ti	55.58	55.58	55.58	49.08
No. 2, Birmingham	48.88	48.88	48.88	42.38
No. 2, foundry, Chicago†	52.50	52.50	52.50	46.50
Basic del'd Philadelphia	56.92	56.92	56.92	49.92
Basic, Valley furnace	52.00	52.00	52.00	46.00
Malleable, Chicago†	52.50	52.50	52.50	46.50
Malleable, Valley	52.50	52.50	52.50	46.50
Charcoal, Chicago	70.56	70.56	70.56	68.56
Ferromanganese‡	186.25	186.25	186.25	173.40

†The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡Average of U. S. prices quoted on Ferroalloy page.

Scrap: (per gross ton)	Feb. 13, 1951	Feb. 6, 1951	Jan. 16, 1951	Feb. 14, 1950
Heavy melt'g steel, P'gh.	*$44.00**	$51.13	$46.13	$31.25
Heavy melt'g steel, Phila.	*42.50**	47.50	49.50	23.00
Heavy melt'g steel, Ch'go	*42.50**	44.63	44.63	27.50
No. 1 hy. com. sh't, Det.	*40.00**	40.25	40.25	23.50
Low phos. Young'n	*46.50**	54.50	48.63	31.75
No. 1 cast, Pittsburgh	*49.00*†	67.75	67.75	37.50
No. 1 cast, Philadelphia	*49.00*†	62.50	62.50	35.50
No. 1 cast, Chicago	*49.00*†	63.00	63.00	38.50

*Basing Pt. †Shipping Pt.
Not including broker's fee after Feb. 7, 1951.

Coke: Connellsville: (per net ton at oven)	Feb. 13, 1951	Feb. 6, 1951	Jan. 16, 1951	Feb. 14, 1950
Furnace coke, prompt	$14.25	$14.25	$14.25	$14.00
Foundry coke, prompt	17.25	17.25	17.25	15.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electro, Conn.	24.50	24.50	24.50	18.50
Copper, Lake, Conn.	24.625	24.625	24.625	18.625
Tin Straits, New York	$1.825†	$1.825*	$1.75	74.50
Zinc, East St. Louis	17.50	17.50	17.50	9.75
Lead, St. Louis	16.80	16.80	16.80	11.80
Aluminum, virgin	19.00	19.00	19.00	17.00
Nickel, electrolytic	53.55	53.55	53.55	42.97
Magnesium, ingot	24.50	24.50	24.50	20.50
Antimony, Laredo, Tex.	42.00	42.00	32.00	27.25

†Tentative. *Revised.

Composite Prices

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 130 of May 12, 1949, issue.)

	Finished Steel Base Price	Pig Iron	Scrap Steel
Feb. 13, 1951	4.131¢ per lb.	$52.69 per gross ton	*$43.00* per gross ton
One week ago	4.131¢ per lb.	52.69 per gross ton	47.75 per gross ton
One month ago	4.131¢ per lb.	52.69 per gross ton	46.75 per gross ton
One year ago	3.837¢ per lb.	46.38 per gross ton	27.25 per gross ton

	Finished Steel Base Price High	Finished Steel Base Price Low	Pig Iron High	Pig Iron Low	Scrap Steel High	Scrap Steel Low
1951	4.131¢ Jan. 2	4.131¢ Jan. 2	$52.69 Jan. 2	$52.69 Jan. 2	$47.75 Jan. 30	$43.00 Feb. 7
1950	4.131¢ Dec. 1	3.837¢ Jan. 3	52.69 Dec. 12	45.88 Jan. 3	45.13 Dec. 19	26.25 Jan. 3
1949	3.837¢ Dec. 27	3.3705¢ May 3	46.87 Jan. 18	45.88 Sept. 6	43.00 Jan. 4	19.33 June 28
1948	3.721¢ July 27	3.193¢ Jan. 1	46.91 Oct. 12	39.58 Jan. 6	43.16 July 27	39.75 Mar. 9
1947	3.193¢ July 29	2.848¢ Jan. 1	37.98 Dec. 30	30.14 Jan. 7	42.58 Oct. 28	29.50 May 20
1946	2.848¢ Dec. 31	2.464¢ Jan. 1	30.14 Dec. 10	25.37 Jan. 1	31.17 Dec. 24	19.17 Jan. 1
1945	2.464¢ May 29	2.396¢ Jan. 1	25.37 Oct. 23	23.61 Jan. 2	19.17 Jan. 2	18.92 May 22
1944	2.396¢	2.396¢	$23.61	$23.61	19.17 Jan. 11	15.76 Oct. 24
1943	2.396¢	2.396¢	23.61	23.61	$19.17	$19.17
1942	2.396¢	2.396¢	23.61	23.61	19.17	19.17
1941	2.396¢	2.396¢	$23.61 Mar. 20	$23.45 Jan. 2	$22.00 Jan. 7	$19.17 Apr. 10
1940	2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2	21.83 Dec. 30	16.04 Apr. 9
1939	2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12	22.50 Oct. 3	14.08 May 16
1938	2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	19.61 July 6	15.00 Nov. 22	11.00 June 7
1937	2.58414¢ Mar. 9	2.32263¢ Jan. 4	32.25 Mar. 9	20.25 Feb. 16	21.92 Mar. 30	12.67 June 9
1936	2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11	17.75 Dec. 21	12.67 June 8
1932	1.89196¢ July 5	1.83910¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6	8.50 Jan. 12	6.43 July 5
1929	2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17	17.58 Jan. 29	14.08 Dec. 8

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

ALTER

BIG ENOUGH FOR *"BIG BUSINESS"*
–PERSONAL ENOUGH FOR *SMALL*

IRON AND STEEL
SCRAP

ALL GRADES OF
STAINLESS and ALLOY SCRAP

Cast Iron
Electric Furnace Grades
Open Hearth
Foundry Steel
Sheet Iron for Baling
Stainless Steel
Non-Ferrous Metals

Over 50 Years
ALTER
COMPANY

1700 ROCKINGHAM ROAD DAVENPORT 2, IOWA

IRON AGE

STEEL PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middletown	Youngstown	Bethlehem	Buffalo	Conshohocken	Johnstown	Sparrows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	$52.00[1]													
Alloy, net ton	$54.00[1,17]													$54.00[41]
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	$56.00[1,6]	$56.00[1]	$56.00[1]						$56.00[3]		$56.00[3]			
Carbon forging billets, net ton	$66.00[1,6]	$66.00[1,4]	$66.00[1]	$66.00[4]	$66.00[4]				$66.00[3,4]	$73.00[24]	$66.00[3]			$69.00[41]
Alloy, net ton	$70.00[1,17]	$70.00[1,4]	$70.00[1]		$70.00[4]			$70.00[3]	$70.00[3,4]	$77.00[24]	$70.00[3]			$73.00[41]
PIPE SKELP	3.35[1] 3.45[5]						3.35[1,4]							
WIRE RODS	4.10[3] 4.30[19]	4.10[2,4,33]	4.10[6]	4.10[3]			4.10[6]				4.10[3]	4.20[3]		
SHEETS Hot-rolled (18 ga. & hvr.)	3.80[1,5,9,15] 3.75[28]	3.80[5,33]	3.60[1,6,8]	3.60[4]		3.60[7]	3.60[1,4,6] 4.00[13]		3.60[3]	4.00[24]		3.60[3]		3.80[13] 4.40[47]
Cold-rolled	4.35[1,5,9,15] 5.35[63]		4.35[1,6,8]	4.35[4]		4.35[7]	4.35[1,6]		4.35[3]			4.35[3]		4.55[13]
Galvanized (10 gage)	4.80[1,9,15]		4.80[1,8]		4.80[4]	4.80[7]	6.00[24]					4.80[3]		
Enameling (12 gage)	4.65[1]		4.65[1,8]			4.65[7]								
Long terne (10 gage)	5.20[9,15]						6.00[24]							
Hi str. low alloy, h.r.	5.40[1,5] 5.75[9]	5.40[1]	5.40[1,8] 5.90[6]	5.40[4]			5.40[1,4,15]		5.40[3]	5.65[24]		5.40[3]		5.95[12]
Hi str. low alloy, c.r.	6.55[1,5] 6.90[9]		6.55[1,8] 7.05[6]	6.55[4]			6.55[4]		6.55[3]			6.55[3]		7.10[12]
Hi str. low alloy, galv.	7.20[1]													
STRIP Hot-rolled	3.60[9], 4.00[41,58], 3.75[28] 3.50[5]	3.50[4,5]	3.50[1,6,8]			3.50[7]	3.50[1,4,6] 4.00[13]		3.50[3,4]	3.90[24]		3.50[3]		4.40[47] 3.80[12]
Cold-rolled	4.65[4,9] 5.05[28] 5.35[63,68]	4.90[5,44]	4.90[6]	4.65[3]		4.65[7]	4.65[4,6] 5.35[13,40]		4.65[3]			4.65[3]		4.85[12] 5.45[47] 5.60[58,61]
Hi str. low alloy, h.r.	5.75[9]		5.80[1] 5.30[6], 5.80[6]				4.95[4], 5.50[1] 5.40[13]			5.55[24]				5.95[12]
Hi str. low alloy, c.r.	7.20[9]			6.70[5]			6.20[4], 6.55[13]							
TINPLATE† Cokes, 1.25-lb base box (1.50 lb. add 25¢)	$8.45[1,5,9,15]		$8.45[1,6,8]				$8.45[4]					$8.55[3]		
Electrolytic 0.25, 0.50, 0.75 lb box	0.25 lb. base box, $7.15[1,4,5,8,9]; $7.25[3,11]; $7.35[22] 0.50 lb., add 25¢; 0.75 lb. add 65¢													
BLACKPLATE, 29 gage Hollowware enameling	5.85[1] 6.15[14]		5.85[1]				5.30[4]							
BARS Carbon steel	3.70[1,5] 3.85[9]	3.70[1,4,33]	3.70[1,4,6,8]	3.70[4]	3.70[4]		3.70[1,4,6]		3.70[3,4]		3.70[3]			3.85[21]
Reinforcing‡	3.70[1,5]	3.70[4]	3.70[1,6,8]	3.70[4]			3.70[1,4]		3.70[3,4]		3.70[3]	3.70[3]		
Cold-finished	4.55[2,4,5,52,71]	4.55[2,69,70,23,73]	4.55[74,75]	4.55[3]	4.55[4,52]									4.70[54]
Alloy, hot-rolled	4.30[1,17]	4.30[1,4,33]	4.30[1,6,8]		4.30[4]		4.30[1,6]	4.30[3]	4.30[3,4]		4.30[3]			4.45[31] 4.65[12]
Alloy, cold-drawn	5.40[17,52,69,71]	5.40[4,23,69,70,73]	5.40[4] 5.90[74]		5.40[4,33]			5.40[3]	5.40[3]					5.55[54]
Hi str. low alloy, h.r.	5.55[1,5]		5.55[1,8] 6.05[6]	5.55[4]			5.55[1]	5.55[3]	5.55[3]		5.55[3]			
PLATE Carbon steel	3.70[1,5,15]	3.70[1]	3.70[1,6,8]	3.70[4] 4.00[9]			3.70[1,4] 3.95[13]		3.70[3]	4.15[24]	3.70[3]	3.70[3]		
Floor plates			4.75[6]	4.75[5]						4.75[24]				
Alloy	4.75[1]	4.75[1]	4.75[1]				5.20[13]			5.05[24]	4.75[3]	4.75[3]		
Hi str. low alloy	5.65[1,5]	5.65[1]	5.65[1,8]	5.65[4,5]			5.65[4] 5.70[13]			5.90[24]	5.65[3]	5.65[3]		
SHAPES, Structural	3.65[1,5] 3.90[9]	3.65[1,33]	3.65[1,8]					3.70[3]	3.70[3]		3.70[3]			
Hi str. low alloy	5.50[1,5]	5.50[1]	5.50[1,8]					5.50[3]	5.50[3]		5.50[3]			
MANUFACTURERS' WIRE Bright	4.85[2,5] 5.10[18]	4.85[2] 4.35		4.85[3]				Kokomo—5.80[39]			4.85[3]	4.95[3]	Duluth—4.85[3]	
PILING, Steel Sheet	4.45[1]	4.45[1]	4.45[6]						4.45[3]					

Smaller numbers indicate producing companies. See key at right. Prices are in cents per lb unless otherwise noted. Extras apply.

STEEL PRICES

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana		
			F=$79.00[19]		INGOTS Carbon forging, net ton
	$62.00[83]		F=$80.00[19]		Alloy, net ton
		$56.00[11]	F=$75.00[19]		BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	$74.00[83]	$66.00[11]	F=$85.00[19] SF, LA, S=$85.00[62]		Carbon forging billets, net ton
	$78.00[83]		F=$89.00[19] LA=$90.00[62]		Alloy net ton
					PIPE SKELP
	4.50[83]	4.10[4,11]	SF=4.90[2] LA=4.90[24,62]	Worcester=4.40[3] Minnequa=4.35[14]	WIRE RODS
		3.60[4,11]	SF, LA=4.30[24] F=4.55[19]	Niles=5.25[44], Geneva=3.70[16]	SHEETS Hot-rolled (18 ga. & hvr.)
		4.35[11]	SF=5.30[24] F=5.30[19]		Cold-rolled
		4.80[4,11]	SF, LA=5.55[24]	Ashland=4.80[7]	Galvanized (10 gage)
					Enameling (12 gage)
					Long ternes (10 gage)
		5.40[11]	F=6.35[19]		Hi str. low alloy, h.r.
			F=7.50[19]		Hi str. low alloy, c.r.
					Hi str. low alloy, galv.
4.10[83]	4.90[83]	3.50[4]	SF, LA=4.25[24,62] F=4.75[19], S=4.50[62]	Atlanta=4.05[65] Minnequa=4.55[14]	STRIP Hot-rolled
			F=6.30[19] LA=6.40[27]	New Haven=5.15[2], 5.85[68]	Cold-rolled
		5.30[11]	F=6.20[19]		Hi str. low alloy, h.r.
					Hi str. low alloy, c.r.
		$8.55	SF=$9.20		TINPLATE Coke, 1.25-lb base box (1.50 lb. add 25¢)
					Electrolytic 0.25, 0.50, 0.75 lb box
					BLACKPLATE, 29 gage Hollowware enameling
4.30[83]	4.10[83]	3.70[4,11]	SF, LA=4.40[24]	Atlanta=4.25[65] Minnequa=4.15[14]	BARS Carbon steel
4.38[83]	4.10[83]	3.70[4,11]	SF, S=4.45[62] F=4.40[19], LA=4.40[62]	Atlanta=4.25[65] Minnequa=4.50[14]	Reinforcing‡
				Newark=5.00[69] Putnam=5.10[69] Hartford=5.10[4] Los Angeles=6.00[4]	Cold-finished
4.90[83]	4.70[83]		LA=5.35[83] F=5.35[19]		Alloy, hot-rolled
				Newark=5.75[69] Worcester= [3] Hartford=5.85[4]	Alloy, cold-drawn
		5.55[11]	F=6.60[19]		Hi str. low alloy, h.r.
	4.10[83]	3.70[4,11]	F=4.30[19] S=4.60[62] Geneva=3.70[16]	Claymont=4.15[29] Coatesville=4.15[21] Minnequa=4.50[14]	PLATE Carbon steel
				Harrisburg=5.25[38]	Floor plates
			F=5.70[19] Geneva=5.65[16]	Coatesville=5.25[21] Claymont=4.85[29]	Alloy
		5.65[11]	F=6.25[19]		Hi str. low alloy
4.25[83]	4.05[83]	3.65[4,11]	SF=4.20[62] F=4.25[16] LA=4.25[24,62] S=4.30[62]	Geneva 3.65[16] Minnequa 4.10[14]	SHAPES, Structural
		50[11]	F=6.10[19]		Hi str. low alloy
5.45[83]	5.25[83]	4.85[4,11]	SF, LA=5.80[24]	Atlanta=5.10[65] Worcester=5.15[3] Minnequa=5.10[14]	MANUFACTURERS' WIRE Bright

KEY TO STEEL PRODUCERS

1 U. S. Steel Co., Pittsburgh
2 American Steel & Wire Co., Cleveland
3 Bethlehem Steel Co., Bethlehem
4 Republic Steel Corp., Cleveland
5 Jones & Laughlin Steel Corp., Pittsburgh
6 Youngstown Sheet & Tube Co., Youngstown
7 Arco Steel Corp., Middletown, Ohio
8 Inland Steel Co., Chicago
9 Weirton Steel Co., Weirton, W. Va.
10 National Tube Co., Pittsburgh
11 Tennessee Coal, Iron & R. R. Co., Birmingham
12 Great Lakes Steel Corp., Detroit
13 Sharon Steel Corp., Sharon, Pa.
14 Colorado Fuel & Iron Corp., Denver
15 Wheeling Steel Corp., Wheeling, W. Va.
16 Geneva Steel Co., Salt Lake City
17 Crucible Steel Co. of America, New York
18 Pittsburgh Steel Co., Pittsburgh
19 Kaiser Steel Corp., Oakland, Calif.
20 Portsmouth Div., Detroit Steel Corp., Detroit
21 Lukens Steel Co., Coatesville, Pa.
22 Granite City Steel Co., Granite City, Ill.
23 Wisconsin Steel Co., South Chicago, Ill.
24 Columbia Steel Co., San Francisco
25 Copperweld Steel Co., Glassport, Pa.
26 Alan Wood Steel Co., Conshohocken, Pa.
27 Calif. Cold Rolled Steel Corp., Los Angeles
28 Allegheny Ludlum Steel Corp., Pittsburgh
29 Worth Steel Co., Claymont, Del.
30 Continental Steel Corp., Kokomo, Ind.
31 Rotary Electric Steel Co., Detroit
32 Laclede Steel Co., St. Louis
33 Northwestern Steel & Wire Co., Sterling, Ill.
34 Keystone Steel & Wire Co., Peoria, Ill.
35 Central Steel & Wire Co., Harrisburg, Pa.
36 Carpenter Steel Co., Reading, Pa.
37 Eastern Stainless Steel Corp., Baltimore
38 Washington Steel Corp., Washington, Pa.
39 Jessop Steel Co., Washington, Pa.
40 Blair Strip Steel Co., New Castle, Pa.
41 Superior Steel Corp., Carnegie, Pa.
42 Timken Steel & Tube Div., Canton, Ohio
43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
44 Reeves Steel & Mfg. Co., Dover, Ohio
45 John A. Roebling's Sons Co., Trenton, N. J.
46 Simonds Saw & Steel Co., Fitchburg, Mass.
47 McLouth Steel Corp., Detroit
48 Cold Metal Products Co., Youngstown
49 Thomas Steel Co., Warren, Ohio
50 Wilson Steel & Wire Co., Chicago
51 Sweet's Steel Co., Williamsport, Pa.
52 Superior Drawn Steel Co., Monaca, Pa.
53 Tremont Nail Co., Wareham, Mass.
54 Firth Sterling St. & Carbide Corp., McKeesport
55 Ingersoll Steel Div., Chicago
56 Phoenix Iron & Steel Co., Phoenixville, Pa.
57 Fitzsimmons Steel Co., Youngstown
58 Stanley Works, New Britain, Conn.
59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
60 American Cladmetals Co., Carnegie, Pa.
61 Cuyahoga Steel & Wire Co., Cleveland
62 Bethlehem Pacific Coast Steel Corp., San Fran.
63 Follansbee Steel Corp., Pittsburgh
64 Niles Rolling Mill Co., Niles, Ohio
65 Atlantic Steel Co., Atlanta
66 Acme Steel Co., Chicago
67 Joslyn Mfg. & Supply Co., Chicago
68 Detroit Steel Corp., Detroit
69 Wycoff Steel Co., Pittsburgh
70 Bliss & Laughlin, Inc., Harvey, Ill.
71 Columbia Steel & Shafting Co., Pittsburgh
72 Cumberland Steel Co., Cumberland, Md.
73 La Salle Steel Co., Chicago
74 Monarch Steel Co., Inc., Hammond, Ind.
75 Empire Steel Co., Mansfield, Ohio
76 Mahoning Valley Steel Co., Niles, Ohio
77 Oliver Iron & Steel Co., Pittsburgh
78 Pittsburgh Screw & Bolt Co., Pittsburgh
79 Standard Forging Corp., Chicago
80 Driver Harris Co., Harrison, N. J.
81 Detroit Tube & Steel Div., Detroit
82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
83 Sheffield Steel Corp., Kansas City
84 Plymouth Steel Co., Detroit
85 Wickwire Spencer Steel, Buffalo
86 Angell Nail and Chaplet, Cleveland
87 Mid-States Steel & Wire, Crawfordsville, Ind.
88 National Supply, Pittsburgh, Pa.
89 Wheatland Tube Co., Wheatland, Pa.
90 Mercer Tube & Mfg. Co., Sharon, Pa.
91 Woodward Iron Co., Woodward, Ala.
92 Sloss-Sheffield Steel & Iron Co., Birmingham
93 Hanna Furance Corp., Detroit
94 Interlake Iron Corp., Cleveland
95 Lone Star Steel Co., Dallas
96 Mystic Iron Works, Everett, Mass.
97 Jackson Iron & Steel Co., Jackson, O.
98 Globe Iron Co., Jackson, O.
99 Pittsburgh Coke & Chemical Co., Pittsburgh
100 Shenango Furnace Co., Pittsburgh
101 Tennessee Products & Chemical Corp., Nashville
102 Koppers Co., Inc., Granite City, Ill.
103 Page Steel & Wire Div., American Chain & Cable., Monessen, Pa.

STAINLESS STEELS

Base price, cents per lb, f.o.b. mill.

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	14.25	15.00	16.50	16.00	24.25	19.75	21.50	12.75	14.75	13.00
Slabs, billets rerolling	18.50	19.75	21.75	20.75	31.75	26.00	28.25	16.50	20.00	16.75
Forg. discs, die blocks, rings	34.00	34.00	36.50	35.50	52.50	40.00	44.50	28.00	28.50	28.50
Billets, forging	26.25	26.25	28.25	27.50	41.00	31.00	34.75	21.50	22.00	22.00
Bars, wires, structurals	31.25	31.25	33.75	32.75	48.75	36.75	41.25	25.75	26.25	26.25
Plates	33.00	33.00	35.00	35.00	51.50	40.50	45.00	27.00	27.50	27.50
Sheets	41.00	41.00	43.00	43.00	56.50	49.00	53.50	36.50	37.00	39.00
Strip, hot-rolled	26.50	28.00	32.25	30.00	48.25	38.75	41.00	23.50	30.25	24.00
Strip, cold-rolled	34.00	36.50	40.00	38.50	58.50	48.00	52.00	30.50	37.00	31.00

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38 (type 316 add 5¢), 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, Ind., 67; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38 (type 316 add 5¢); W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport N. Y., 46; New Britain, Conn., 58; Sharon, Pa., 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y. 46; Canton, Ohio, 42; Ft. Wayne, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28; Monessen, 103.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28 (type 416 add ½¢); Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Axles	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer-1	3.60	4.00	4.70	....	....	....	....	....
Chicago-4	....	....	....	6.15	....	....	....	....
Ensley-11	3.60	4.00	....	....	....	....	....	....
Fairfield-11	....	4.00	4.40	....	....	8.60	4.50	....
Gary-1	3.60	4.00	....	....	....	....	4.50	....
Ind. Harbor-8	3.60	....	4.70	6.15	5.25	8.60	4.50	....
Johnstown-3	....	4.00	....	....	5.60	8.60	....	....
Joliet-1	....	4.00	4.70	....	....	....	....	....
Kansas City-83	....	....	....	6.40	....	....	....	....
Lackawanna-3	3.60	4.00	4.70	....	....	8.60	4.50	....
Lebanon-3	....	....	....	6.15	....	....	....	9.85
Minnequa-14	3.60	4.50	4.70	6.15	....	8.60	4.50	9.85
Pittsburgh-77	....	....	....	....	....	9.35	....	9.85
Pittsburgh-78	....	....	....	....	....	....	....	9.85
Pittsburgh-5	....	....	....	6.15	....	....	....	....
Pittsburg-24	....	....	....	....	....	....	4.65	....
Seattle-62	....	....	....	6.10	....	....	4.35	....
Steelton-3	3.60	....	4.70	....	....	....	4.50	....
Struthers-6	....	....	....	6.15	....	....	....	....
Torrance-24	....	....	....	....	....	....	4.65	....
Youngstown-4	....	....	....	6.15	....	....	....	....

Track Bolts, heat treated, to railroads, 9.85¢ per lb.

BOILER TUBES

Seamless steel, electric welded commercial boiler tubes, locomotive tubes, minimum wall, per 100 ft at mill, c.l. lots, cut lengths 10 to 24 ft.

OD in.	gage BWG	Seamless H.R.	Seamless C.D.	Electric Weld H.R.	Electric Weld C.D.
2	13	$22.67	$26.66	$21.99	$25.86
2½	12	30.48	35.84	29.57	34.76
3	12	33.90	39.90	32.89	34.80
3½	11	42.37	49.89	41.10	48.39
4	10	52.60	61.88	51.03	60.02

Pittsburgh Steel add, H-R: 2 in., 62¢; 2½ in., 84¢; 3 in., 92¢; 3½ in., $1.17; 4 in., $1.45. Add, C-R: 2 in., 74¢; 2½ in., 99¢; 3 in., $1.10; 3½ in., $1.37; 4 in., $1.70.

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net: Effective CaF, content:

70% or more	$43.00
60% or less	40.00

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails Base Col.	Woven Wire Fence 8-15½ ga. Base Col.	Fence Posts Base Col.	Single Loop Bale Ties Base Col.	Twisted Barbless Wire Base Col.	Galv. Barbed Wire Base Col.	Merch. Wire Annld. ¢/lb.	Merch. Wire Galv. (1) ¢/lb.
Alabama City-4	118	126	....	123	....	136	5.70	5.95
Aliquippa, Pa.-5	118	132	....	....	136	140	5.70	6.15
Atlanta-65	121	133	....	126	126	143	5.95	6.40
Bartonville-34	118	130	140	123	143	143	5.95	6.15
Buffalo-85	....	....	....	....	....	....	4.85	....
Cleveland-88	125	....	....	....	....	....	....	....
Cleveland-2	....	....	....	....	....	....	5.70	6.15
Crawfordsville-87	....	132	....	....	....	145	5.95	6.40
Donora, Pa.-2	118	130	....	123	....	140	5.70	6.15
Duluth-2	118	130	....	123	....	140	5.70	6.15
Fairfield, Ala.-11	118	130	....	123	....	136	5.70	6.15
Houston-83	126	138	....	....	....	148	6.10	6.55
Johnstown, Pa.-3	118	130	....	....	140	....	5.70	6.15
Joliet, Ill.-2	118	130	....	123	....	140	5.70	6.15
Kokomo, Ind.-30	120	132	....	125	138	138	5.80	6.05
Los Angeles-62	....	....	....	....	....	....	6.65	....
Kansas City-83	130	130	142	135	....	152	6.30	6.75
Minnequa-14	123	138	130	128	146	146	5.95	6.45
Monessen-18	124	135	....	....	....	145	5.95	6.40
Moline, Ill.-4	....	....	136	....	....	....	....	....
Palmer-85	....	....	....	....	....	....	....	....
Pittsburg, Cal.-24	137	149	....	147	158	160	6.65	6.80
Portsmouth-20	124	137	....	....	147	147	6.10	6.60
Rankin, Pa.-2	118	130	....	....	....	140	5.70	6.15
Sa. Chicago, Ill.-4	118	126	140	123	....	136	5.70	5.95
S. San Fran.-14	....	....	....	147	....	160	6.65	7.10
Sparrows Pt.-3	120	....	....	125	142	142	5.80	6.25
Sterling, Ill.-33	118	130	140	123	140	140	5.70	6.15
Struthers, Ohio-6	....	....	....	....	....	....	5.70	6.15
Torrance, Cal.-24	138	....	....	....	....	....	6.65	....
Worcester-2	124	....	....	....	....	....	6.00	6.45
Williamsport, Pa.-51	....	....	150	....	....	....	....	....

Cut Nails, carloads, base, $6.75 per 100 lb. (less 20¢ to jobbers) at Conshohocken, Pa., (26), Wareham, Mass. (53), Wheeling, W. Va., (15).

(1) Alabama City and So. Chicago do not include zinc extra.

CAST IRON WATER PIPE

Per Net Ton

6 to 24-in., del'd Chicago. $105.30 to $108.80
6 to 24-in., del'd N. Y. 108.50 to 109.50
6 to 24-in., Birmingham. 91.50 to 96.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less $108.50 to $113.00

Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

PIPE AND TUBING

Base discounts, f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD ½ In. Blk.	Gal.	¾ In. Blk.	Gal.	1 In. Blk.	Gal.	1¼ In. Blk.	Gal.	1½ In. Blk.	Gal.	2 In. Blk.	Gal.	2½-3 In. Blk.	Gal.	SEAMLESS 2 In. Blk.	Gal.	2½-3 In. Blk.	Gal.	3½-4 In. Blk.	Gal.
STANDARD T. & C.																				
Sparrows Pt.-3	34.0	12.0	37.0	16.0	39.5	19.5	40.0	20.0	40.5	21.0	41.0	21.5	41.5	22.0	....	....	....	....	....	....
Cleveland-4	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Oakland-19	25.0	3.0	28.0	7.0	30.5	10.5	31.0	21.0	31.5	22.0	32.0	12.5	32.5	13.0	....	....	....	....	....	....
Pittsburgh-5	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.5	8.0	32.5	11.5	34.5	13.5
Pittsburgh-10	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
St. Louis-32	35.0	13.0	38.0	17.0	40.5	20.5	41.0	21.0	41.5	22.0	42.0	22.5	42.5	23.0	....	....	....	....	....	....
Sharon-90	36.0	13.0	39.0	17.0	41.5	20.0	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.0	....	....	....	....	....	....
Toledo-88	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	....	32.5	....	34.5	....
Wheeling-15	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Wheatland-89	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
EXTRA STRONG, PLAIN ENDS																				
Sparrows Pt.-3	33.5	13.0	37.5	17.0	39.5	20.5	40.0	21.0	40.5	22.0	41.0	22.5	41.5	23.0	....	....	....	....	....	....
Cleveland-4	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Oakland-19	24.5	4.0	28.5	18.0	30.5	11.5	31.0	12.0	31.5	13.0	32.0	13.5	32.5	14.0	....	....	....	....	....	....
Pittsburgh-5	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.0	7.5	33.0	12.0	36.0	15.5
Pittsburgh-10	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5
St. Louis-32	34.5	14.0	38.5	18.0	40.5	21.5	41.0	22.0	41.5	23.0	42.0	23.5	42.5	24.0	....	....	....	....	....	....
Sharon-90	35.5	14.0	39.5	18.0	41.5	21.0	42.0	21.5	42.5	22.0	43.0	22.5	43.5	23.0	....	....	....	....	....	....
Toledo-88	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	....	33.0	....	36.5	....
Wheeling-15	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Wheatland-89	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5

Galvanized discounts based on zinc at 17¢ per lb, East St. Louis. For each 1¢ change in zinc, discounts vary as follows: ½ in., ¾ in., and 1 in., 1 pt.; 1¼ in., 1½ in., 2 in., ¾ pt.; 2½ in., 3 in., ½ pt. Calculate discounts on even cents per lb of zinc, i.e., if zinc is 16.51¢ to 17.50¢ per lb, use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢. Threads only, buttweld and seamless, 1 pt. higher discount. Plain ends, buttweld and seamless, 3 in. and under, 3½ pts. higher discount. Buttweld jobbers' discount, 5 pct.

WAREHOUSES

Base price, f.o.b., dollars per 100 lb. *(Metropolitan area delivery, add 20¢ except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul, add 15¢; Memphis, add 10¢; Philadelphia, add 25¢; New York, add 30¢).

Cities	Sheets			Strip		Plates	Shapes	Bars		Alloy Bars			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled A 4615 As rolled	Hot-Rolled A 4140 Annealed	Cold-Drawn A 4615 As rolled	Cold-Drawn A 4140 Annealed
Baltimore	5.60	6.84	7.49[2]–8.07	6.04	.....	5.80	6.14	6.04	6.84–6.89	10.24	10.54	11.89	12.19
Birmingham*	5.60	6.40	6.78	5.55	.....	5.95	5.70	5.55	.....	.....	.....	.....	.....
Boston	6.20	7.00–7.25	7.74–8.29	6.15	8.50[4]	6.48–6.78	6.20	6.05	6.79–6.84	10.25	10.55	11.90–12.00	12.20–12.30
Buffalo	5.60	6.40	7.74–8.09	5.86	.....	6.05	5.80	5.60	6.40–6.45	10.15–10.85	10.45	11.80	11.95–12.10
Chicago	5.60	6.40	7.75	5.55	.....	5.80	5.70	5.55	6.30	9.80	10.10	11.45	11.75
Cincinnati*	5.87	6.44	7.39	5.80	.....	6.19	6.09	5.80	6.61	10.15	10.45	11.80	12.10
Cleveland	5.60	6.40	8.10	5.69	6.90	5.92	5.82	5.57	6.40	9.91	10.21	11.56	11.86
Detroit	5.78	6.53	7.89	5.94	.....	5.99	6.09	5.84	6.	10.11	10.41	11.76	12.06
Houston	7.00	8.25	.....	.....	.....	6.85	6.50	6.65	9.35	10.35	11.25	.....	12.75
Indianapolis, del'd	6.00	6.80	8.15	5.95	.....	6.20	6.10	5.95	6.80	.....	.....	.....	.....
Kansas City	6.00	6.80	7.45	6.15	7.50	6.40	6.30	6.15	7.00	10.40	10.70	12.05	12.35
Los Angeles	6.35	7.90	8.85	6.40	9.45[6]	6.40	6.35	6.35	8.20	11.30	11.30	13.20	13.50
Memphis*	6.33–6.38	7.06–7.10	.....	6.33–6.38	.....	6.43–8.02	6.33–6.48	6.08–6.33	7.16–7.32	.....	.....	.....	.....
Milwaukee	5.74	6.54	7.89	5.69–6.59	.....	5.94	5.84	5.69	6.44–6.54	9.94	10.24	11.59	11.89
New Orleans*	5.70	6.59	.....	5.75	7.25	5.95	5.75	5.75	7.30	.....	.....	.....	.....
New York*	5.67–5.97	7.19[5]–7.24[1]	8.14[3]	6.29–6.89	8.63[4]	6.28–6.58	6.10	6.12	6.99	10.05–10.15	10.35–10.45	11.70–11.80	12.10–12.20
Norfolk	6.50[3]	.....	.....	.....	.....	6.50[3]	6.60[3]	6.55[3]	.....	.....	.....	.....	.....
Philadelphia*	5.90	6.80	8.00	6.10	.....	6.05	5.90	6.05	6.86	9.90	10.20	.....	.....
Pittsburgh	5.60	6.40	7.75	5.65–5.95	.....	5.75	5.70	5.55	6.15	9.80	10.10	11.45	11.75
Portland	6.60–7.55	8.95	8.50–9.10	7.30	.....	6.80	6.95	6.90	.....	.....	12.15	.....	.....
Salt Lake City	7.95	.....	9.70–10.50[3]	8.70–8.75	.....	8.05	7.95–8.30	7.95–8.65	9.00	.....	.....	.....	.....
San Francisco*	6.65	8.05[3]	8.55–8.90[3]	6.60	9.45[6]	6.50	6.45	6.45	8.20	11.30	11.30	13.20	13.20–13.50
Seattle	7.05	8.60	9.20	9.05	.....	6.75	6.65	6.75	9.05	.....	.....	.....	.....
St. Louis	5.80–5.85	6.65	8.00	5.80	8.00[4]–8.28	6.13	6.03	5.80	6.55–6.65	10.05	10.35	11.70	12.00
St. Paul*	6.16	6.96	8.31	6.11	.....	6.36	6.26	6.11	6.96	10.36	10.66	12.01	12.31

BASE QUANTITIES (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity.

EXCEPTIONS: (1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 400 to 1999 lb; (4) 6000 lb and over; (5) 1500 to 9999 lb.; (6) 2000 to 5999 lb.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Blast Furnace Silvery	Low Phos. Charcoal
Bethlehem-3	54.00	54.50	55.00	55.50	.....	.....	.....
Birmingham-4	48.38	48.88	.....	.....	.....	.....	.....
Birmingham-91	48.38	48.88	.....	.....	.....	.....	.....
Birmingham-92	48.38	48.88	.....	.....	.....	.....	.....
Buffalo-4	52.00	52.50	53.00	.....	.....	.....	.....
Buffalo-93	52.00	52.50	53.00	.....	.....	63.75	.....
Chicago-94	52.00	52.50	52.50	53.00	.....	.....	.....
Cleveland-2	52.00	52.50	52.50	53.00	57.00	.....	.....
Cleveland-4	52.00	52.50	52.50	.....	.....	.....	.....
Daingerfield, Tex.-95	48.00	48.50	48.50	.....	.....	.....	.....
Duluth-94	52.00	52.50	52.50	53.00	.....	.....	.....
Erie-94	52.00	52.50	52.50	53.00	.....	.....	.....
Everett, Mass.-96	.....	53.25	53.75	.....	.....	.....	.....
Fontana-19	58.00	58.50	.....	.....	.....	.....	.....
Geneva, Utah-16	52.00	52.50	52.50	53.00	.....	.....	.....
Granite City, Ill.-102	53.90	54.40	54.90	.....	.....	.....	.....
Hubbard, O.-8	52.00	52.50	52.50	.....	.....	.....	.....
Ironton, Utah-16	52.00	52.50	.....	.....	.....	.....	.....
Jackson, O.-97,98	.....	.....	.....	.....	.....	62.50	.....
Lyle, Tenn.-101	.....	.....	.....	.....	.....	.....	66.00
Monessen-18	54.00	.....	.....	.....	.....	.....	.....
Neville Island-99	52.00	52.50	52.50	53.00	.....	.....	.....
Pittsburgh-1	52.00	.....	.....	53.00	.....	.....	.....
Sharpeville-100	52.00	52.50	52.50	53.00	.....	.....	.....
Steelton-3	54.00	54.50	55.00	55.50	60.00	.....	.....
Swedeland-26	56.00	56.50	57.00	57.50	.....	.....	.....
Toledo-94	52.00	52.50	52.50	53.00	.....	.....	.....
Troy, N. Y.-4	54.00	54.50	55.00	.....	60.00	.....	.....
Youngstown-8	52.00	52.50	52.50	53.00	.....	.....	.....

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct), 50¢ per ton for each 0.50 pct manganese over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus content over 0.70 pct. Silvery iron: Add $1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. $1 per ton for 0.75 pct or more phosphorus, manganese as above. Bessemer ferrosilicon prices are $1 over comparable silvery iron.

REFRACTORIES

Fire Clay Brick — *(F.o.b. works) Carloads, Per 1000*

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5)	$94.60
No. 1 Ohio	88.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	88.00
No. 2 Ohio	79.20
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)	13.75

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$94.60
Childs, Pa.	99.00
Hays, Pa.	100.10
Chicago District	104.50
Western Utah and Calif.	111.10
Super Duty, Hays, Pa., Athens, Tex., Chicago	111.10
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	16.50
Silica cement, net ton, bulk, Hays, Pa.	18.70
Silica cement, net ton, bulk, Ensley, Ala.	17.60
Silica cement, net ton, bulk, Chicago District	17.60
Silica cement, net ton, bulk, Utah and Calif.	24.70

Chrome Brick — *Per Net Ton*

Standard chemically bonded, Balt., Chester	$82.00

Magnesite Brick

Standard, Baltimore	$104.00
Chemically bonded, Baltimore	93.00

Grain Magnesite — *St. ⅜-in. grains*

Domestic, f.o.b. Baltimore, in bulk fines removed	$62.70
Domestic, f.o.b. Chewelah, Wash., in bulk	36.30
in sacks	41.80

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢	$13.00

COKE

	Net Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	$14.00 to $14.50
Foundry, beehive (f.o.b. oven) Connellsville, Pa.	$17.00 to $17.50
Foundry, oven coke	
Buffalo, del'd	$25.35
Chicago, f.o.b.	23.00
Detroit, f.o.b.	24.00
New England, del'd	24.80
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	22.70
Swedeland, Pa., f.o.b.	22.60
Plainesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	23.50
Cleveland, del'd	25.72
Cincinnati, del'd	25.06
St. Paul, f.o.b.	22.50
St. Louis	25.40
Birmingham, del'd	21.69
Neville Island	23.00

LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)

	Per gross ton
Old range, bessemer	$8.70
Old range, nonbessemer	8.55
Mesabi, bessemer	8.45
Mesabi, nonbessemer	8.30
High phosphorus	8.30

After adjustments for analyses, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in lake vessel rates, upper lake rail freights, dock handling charges and taxes thereon.

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	5.35¢
0.41 to 0.60 carbon	6.80¢
0.61 to 0.80 carbon	7.40¢
0.81 to 1.05 carbon	9.35¢
1.06 to 1.35 carbon	11.65¢

Worcester, add 0.30¢; Sharon, Carnegie, New Castle, add 0.35¢; Detroit, 0.26 to 0.40 carb., add 25¢; other grades add 15¢. New Haven, 0.26 to 0.40 carb., add 50¢; other grades add 5¢.

News about

UNICHROME
Trade Mark

COATINGS for METALS

METALLIC • ORGANIC
DECORATIVE • PROTECTIVE

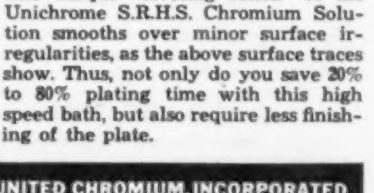
New dip produces glossy dense black finish

Newly developed Unichrome Dip for zinc offers you an unusual, dense black *metallic* finish that has all the appearance of highest quality black *enamel*. It has a uniform depth of color, good gloss. It increases the rust resistance of zinc plated steel and withstands wear. Suggested uses: As an attractive product finish to cut costs; as a corrosion inhibiting finish; as a *quality* replacement for black nickel. Write for more information. NOTE: Available in uniform olive drab, too.

Bright Finishing is no problem

Having trouble getting materials for bright finishing? Then consider this: Zinc processed in Unichrome *Clear* Dip equals more costly and scarcer finishes in appearance. It stretches supplies since it requires only about ⅓ of the plated metal required for usual bright, decorative finishes. It has superior rust resistance. And it's your best bet for *economy*.

Hard chromium plated SMOOTHER as well as faster



The unique "leveling action" of the Unichrome S.R.H.S. Chromium Solution smooths over minor surface irregularities, as the above surface traces show. Thus, not only do you save 20% to 80% plating time with this high speed bath, but also require less finishing of the plate.

UNITED CHROMIUM, INCORPORATED

100 East 42nd St., New York 17, N. Y.
Detroit 20, Mich. • Waterbury 20, Conn.
Chicago 4, Ill. • Los Angeles 13, Calif.
In Canada:
United Chromium Limited, Toronto, Ont.

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Machine and Carriage Bolts

	Pct Off List	
	Less Case	C.
½ in. & smaller x 6 in. & shorter	15	28½
9/16 in. & ⅝ in. x 6 in. & shorter	18½	30½
¾ in. & larger x 6 in. & shorter	17½	29½
All diam. longer than 6 in.	14	27½
Lag, all diam. x 6 in. & shorter	23	35
Lag, all diam. longer than 6 in.	21	33
Plow bolts	34	....

Nuts, Hot Pressed, Cold Punched—Sq

	Pct Off List			
	Less Keg (Reg.)	K.	Less Keg (Hvy.)	K.
½ in. & smaller.	15	28½	15	28½
9/16 in. & ⅝ in..	12	25	6½	21
¾ in. to 1½ in. inclusive	9	23	1	16½
1⅝ in. & larger.	7½	22	1	16½

Nuts, Hot Pressed—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	16½	29½	6½	21
¾ in. to 1½ in. inclusive	12	25	2	17½
1⅝ in. & larger.	8½	23	2	17½

Nuts, Cold Punched—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	23	35	17½	30½
¾ in. to 1½ in. inclusive	19½	31½	12	25
1⅝ in. & larger.	12	25	6½	21

Nuts, Semi-Finished—Hexagon

	Reg.		Hvy.	
½ in. & smaller.	35	45	28½	39½
9/16 in. & ⅝ in..	29½	40½	22	34
¾ in. to 1½ in. inclusive	24	36	15	28½
1⅝ in. & larger.	13	26	8½	23
	Light			
7/16 in. & smaller	35	45		
½ in. thru ⅝ in.	28½	39½		
¾ in. to 1½ in. inclusive	26	37		

Stove Bolts — *Pct Off List*

Packaged, steel, plain finished	56—10
Packaged, plated finish	41—10
Bulk, plain finish**	67*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets — *Base per 100 lb.*

½ in. & larger	$7.85
	Pct Off List
7/16 in. & smaller	36

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa.

Cap and Set Screws

(In bulk)	*Pct Off List*
Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright	54
¾ in. thru 1 in. up to & including 6 in.	48
¼ in. thru ⅝ in. x 6 in. & shorter high C double heat treat	46
¾ in. thru 1 in. up to & including 6 in.	41
Milled studs	35
Flat head cap screws, listed sizes	16
Fillister head cap, listed sizes	34
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	53

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	21.60
Ton lots	23.75
Less ton lots	25.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

DON'T GUESS... use HOUGHTON'S

HI-TEMP OILS

and be sure!

• Hit-or-miss hot spot lubrication is costly . . . and unnecessary. You can't afford to guess about oils that must lubricate within the critical 300°-500°F. range!

We know . . . because we made extensive on-the-job tests for two years to find which oils are best for various high temperature applications.

Take advantage of the "know-how" the Houghton man offers you. Get clean, dependable, low-cost lubrication from the *right* HI-TEMP OIL for the job!

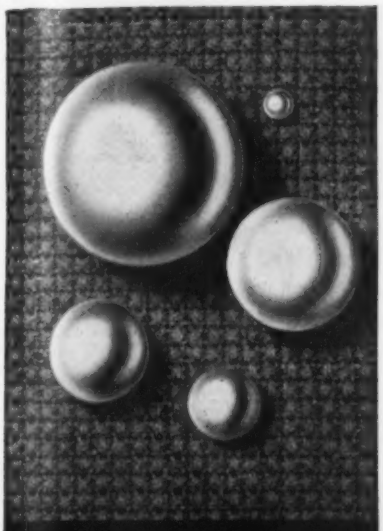
And for actual Hi-Temp test results with proper application data, write E.F. Houghton & Co., Philadelphia 33, Pa.

WRITE FOR LATEST HI-TEMP BULLETIN

E. F. HOUGHTON & CO.
PHILADELPHIA · CHICAGO · DETROIT · SAN FRANCISCO

Ready to give you on-the-job service . . .

a metal ball PROBLEM?



Let STROM Work It Out For You

Whether it is a precision ball bearing or one of the other many ball applications in industry, your problem will not be entirely new. Strom has been in on many ball problems and knows the importance of the right ball for the job.

Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity, and dependable physical quality, there's not a better ball made.

Strom STEEL BALL CO.

1850 So. 54th Ave., Cicero 50, Ill.

Largest Independent and Exclusive Metal Ball Manufacturer

ELECTRODES

Cents per lb., f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb.
	GRAPHITE	
17, 18, 20	60, 72	17.85
8 to 16	48, 60, 72	17.85
7	48, 60	19.57
6	48, 60	20.95
4, 5	40	21.50
3	40	22.61
2½	24, 30	23.15
2	24, 30	25.36
	CARBON	
40	100, 110	8.03
35	65, 110	8.03
30	65, 84, 110	8.03
24	72 to 104	8.03
20	84, 90	8.03
17	60, 72	8.03
14	60, 72	8.57
10, 12	60	8.84
8	60	9.10

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

	Plate	Sheet
Stainless-carbon		
No. 304, 20 pct, Coatesville, Pa. (21)	*29.5	
Washgtn, Pa. (39)	*29.5	
Claymont, Del. (29)	*28.00	
Conshohocken, Pa. (26)		*24.00
New Castle, Ind. (55)	*26.50	*25.50
Nickel-carbon 10 pct Coatesville (21)	32.5	
Inconel-carbon 10 pct Coatesville (21)	40.5	
Monel-carbon 10 pct Coatesville (21)	33.5	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)		77.00
Aluminized steel sheets, hot dip, Butler, Pa. (7)		7.75

*Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.235
18	4	1	—	5	$1.86
18	4	2	—	—	$1.38
1.5	4	1.5	8	—	78.5¢
6	4	2	6	—	.87¢

High-carbon chromium ..... 63.5¢
Oil hardened manganese..... 35¢
Special carbon ..... 32.5¢
Extra carbon ..... 27¢
Regular carbon ..... 23¢

Warehouse prices on and east of Mississippi are 3¢ per lb higher. West of Mississippi, 5¢ higher.

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.i.f. New York, ocean bags	7.4¢ to 9.0¢
Canadian sponge iron, del'd, in East	10.00¢
Domestic sponge iron, 98+% Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe	36.0¢ to 39.5¢
Electrolytic iron unalleated, minus 325 mesh, 99+% Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	70.0¢ to $1.35
Aluminum	29.00¢
Brass, 10 ton lots	30.00¢ to 33.25¢
Copper, electrolytic	10.25¢ plus metal value
Copper, reduced	10.00¢ plus metal value
Cadmium, 100-199 lb.	95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity	$3.50
Lead	6.5¢ plus metal value
Manganese	52.00¢
Molybdenum, 99%	$2.65
Nickel, unannealed	75.5¢
Nickel, annealed	81.5¢
Nickel, spherical, unannealed	78.5¢
Silicon	34.00¢
Solder powder	6.5¢ to 8.5¢ plus met. value
Stainless steel, 302	75.00¢
Tin	11.00¢ plus metal value
Tungsten, 99%	$4.15
Zinc, 10 ton lots	20.50¢ to 23.85¢

EFFICIENT PICKLING WITH *Rodine*®

PICKLING ACID INHIBITORS

SAVES ACID
SAVES STEEL
SAVES MONEY

Use "RODINE" for improved pickling and increased production!

"RODINE" meets Government Specification No. U.S.N. 51-I-2.

For Improved Drawing and Cold Forming . . .

"Granodraw" forms on pickled surfaces a tightly bound adherent, zinc-iron phosphate coating which facilitates the cold extrusion of steel, improves drawing, and lengthens die life.

"Cuprodine" coats both carbon and stainless steels with a thin, bright, adherent layer of copper. This coating prolongs die life and improves the drawing of wire, rod and tubing.

Write for Descriptive Folder

American Chemical Paint Co.
AMBLER ACP PENNA.

A-1015

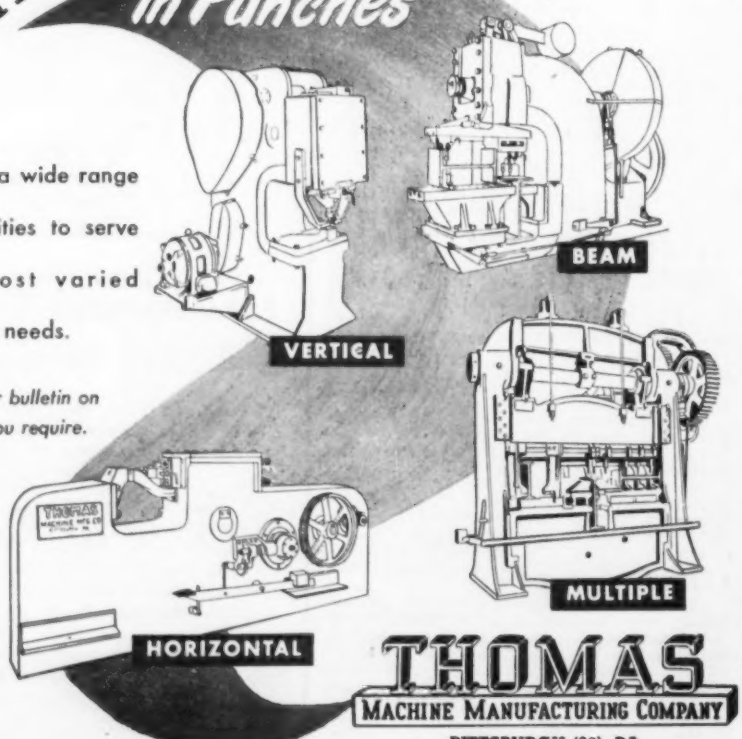
EASTON ...a dependable design and construction service in industrial cars

EASTON CAR & CONSTRUCTION COMPANY • EASTON, PA. • NEW YORK • PHILADELPHIA • PITTSBURGH

THE TREND IS TO THOMAS in Punches

Made in a wide range of capacities to serve your most varied punching needs.

Send for bulletin on type you require.



THOMAS MACHINE MANUFACTURING COMPANY
PITTSBURGH (23), PA.

24

PUNCHES • SHEARS • PRESSES • BENDERS • SPACING TABLES

ELECTRICAL SHEETS

22 Ga. H-R cut lengths

F.o.b. Mill Cents Per Lb.	Armature	Elec.	Motor	Dynamo	Transf. 72	Transf. 65	Transf. 58
Beech Botton-15	.....	7.25	8.50	9.30	9.85	10.40	11.10
Brackenridge-28	.....	7.25	8.50	9.30	9.85	.....	.....
Follansbee-63	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Granite City-22	.....	7.95	9.20	.....	.....	.....	.....
Ind. Harbor-3	6.75	7.25	.....	.....	.....	.....	.....
Mansfield-75	6.75	7.25	8.50	9.30	.....	.....	.....
Niles, O.-64	7.05	7.55	.....	.....	.....	.....	.....
Vandergrift-1	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Warren, O.-4	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Zanesville-7	8.75	7.25	8.50	9.30	9.85	10.40	11.10

Transformer 52, 80¢ above Transformer 58.

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max. Si.)

0.06% C	30.50	0.20% C	29.50
0.10% C	30.00	0.50% C	29.25
0.15% C	29.75	1.00% C	29.00
2.00% C			28.75
65-69% Cr, 4-9% C			22.00
62-66% Cr, 4-6% C, 6-9% Si.			22.85

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% Max. C.	$1.09
0.50% max. C.	1.05
.00 min. C.	1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 21.75¢ per lb of contained Cr plus 12.00¢ per lb of contained Si.

Bulk 1-in. x down, 21.90¢ per lb contained Cr plus 12.20¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, dump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe.

Carloads	19.60
Ton lots	22.10
Less ton lots	23.00

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	20.00
Ton lots	22.30
Less ton lots	23.30

CMSZ

Contract price, cents per lb of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.

Ton lots	20.75
Less ton lots	22.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	16.50¢
Less ton lots	17.75¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	18.00¢
Ton lots to carload packed	19.00¢
Less ton lots	20.50¢

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50

Simply clean surface

STEP 1

Simply apply **dy✓chek** Dye Penetrant *(by brush, spray, or dip)*

STEP 2

Simplified Non-Destructive Testing

Simply remove excess dye with **dy✓chek** Dye Remover

STEP 3

Simply apply **dy✓chek** Developer

STEP 4

New Way to INSPECT METALS

Save dollars... save time... and be sure!

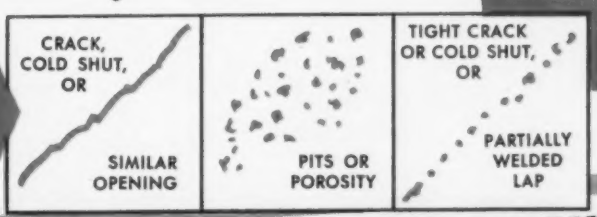
HERE ARE FACTS ON

dy✓chek TRADE-MARK

the dye penetrant inspection method

PATENT PENDING

AND... FLAWS ARE REVEALED



QUESTIONS AND ANSWERS

Q. What is Dy-Chek?

A. Dy-Chek is the revolutionary new dye penetrant method of inspection developed by *Northrop Aircraft Research.* It consists of three special liquid compounds easily applied by brush, spray, or dip.

Q. What does it do?

A. Dy-Chek reveals the location, extent, and nature of any flaw having a surface opening or discontinuity in any metal.

Q. What kind of metal surface can Dy-Chek inspect?

A. Any kind, magnetic or non-magnetic, including castings, forgings, machined parts, plate, sheet, tubing, pipe, and weldments.

Q. Are special lights required?

A. No lights, booths, electricity, or special installations are necessary.

Q. Is Dy-Chek inspection expensive?

A. Not at all. No fees or licensing is required—only the moderate cost of the special liquids. Dy-Chek materials cover large areas per gallon. Dye Remover is water-soluble, therefore water can be used freely in Step 3.

Q. Can Dy-Chek be used in the field, for preventive maintenance, as well as in a plant for manufacturing and receiving inspection?

A. Yes, the complete portability of Dy-Chek is one of its great advantages.

LEARN HOW the Dy-Chek method of non-destructive testing can save you time and money in your business. Ask for complete details today.

dy✓chek COMPANY

division of Northrop Aircraft, Inc.

1505 EAST BROADWAY
HAWTHORNE, CALIFORNIA

dy✓chek —*the dye penetrant inspection method*

Dy✓Chek Company
1505 East Broadway, Hawthorne, California

Send by return mail complete details on Dy-Chek, the Dye Penetrant Method of inspection for any metal.

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____

YOU SAVE

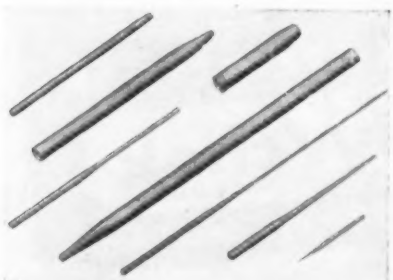
on parts

made to

your specifications

by

TORRINGTON



You save time and money when you rely on our high productive capacity and special equipment to turn out precision parts to your order.

Typical are surgical and dental instruments, pen and pencil barrels, soldering iron cases, etc. Medium wall tubing up to 2½" O.D. and solid steel .015" to ⅝" diameter handled.

We are also set up to make such parts as special rollers, shafts, studs, dowel pins, special needles, instrument shafts and pivots, screw driver and ice pick blades, knurled mandrels and spindles, etc.

Send your prints and specifications today for prompt quotation.

THE TORRINGTON COMPANY

Specialty Department

555 Field Street • Torrington, Conn.

Makers of

TORRINGTON NEEDLE BEARINGS

FERROALLOYS

Ferromanganese

78-82% Mn. maximum contract base price, gross ton, lump size.

F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont., Ashtabula, O.	$185
F.o.b. Johnstown, Pa.	$187
F.o.b. Sheridan, Pa.	$185
F.o.b. Etna, Clairton, Pa.	$188

$2.00 for each 1% above 82% Mn, penalty, $2.15 for each 1% below 78%.

Briquets—Cents per pound of briquet, delivered, 66% contained Mn.

Carload, bulk	10.95
Ton lots	12.55

Spiegeleisen

Contract prices gross ton, lump, f.o.b.

	16-19% Mn 3% max. Si	19-21% Mn 3% max. Si
Palmerton, Pa.	$74.00	$75.00
Pgh. or Chicago	74.00	75.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.

Carload, packed	29.75
Ton lots	31.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	28
Ton lots	30
Less ton lots	32

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb. of contained Mn.....19.15¢

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.

Carload bulk	9.90
Ton lots	11.65
Briquet, contract basis carlots, bulk delivered, per lb of briquet	11.15
Ton lots	11.75

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $89.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $83.00. Add $1.00 per ton for each additional 0.50% Si up to and including 18%. Add $1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	21.70
97% Si, 1% Fe	22.10

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 1 lb Si briquets.

Carload, bulk	6.95
Ton lots	8.55

Electric Ferrosilicon

Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.

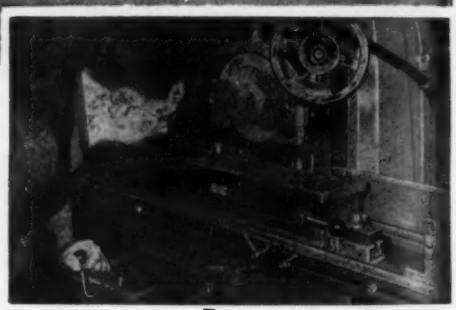
25% Si	19.00	75% Si	14.30
50% Si	12.40	85% Si	15.55
90-95% Si			17.50

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd, Mn 85-90%.

	Carloads	Ton	Less
0.7% max. C, 0.06% P, 90% Mn	26.25	28.10	29.10
0.07% max. C	25.75	27.60	28.80
0.15% max. C	25.25	27.10	28.30
0.30% max. C	24.75	26.60	27.80
0.50% max. C	24.25	26.10	27.30
0.75% max. C, 7.00% max. Si	21.25	23.10	24.30

Enthusiastic Customers do our BEST advertising



Tinnerman Products, Inc., of Cleveland, Ohio, manufacturers of Speed Nuts, use a No. 25 Grand Rapids Hydraulic Feed Surface Grinder in their tool room. Here their Model 25 is shown grinding a combination die.

You will appreciate the micro-inch finish produced at production speeds on Grand Rapids Grinders. All Grand Rapids Hydraulic Feed Surface Grinders have these outstanding features:

1. One-piece column and base casting for vibrationless rigidity
2. Precision ball-bearing spindle which is greased for life
3. Bijur one-shot lubrication system eliminating hand oiling
4. Patented vertical movement of wheel head for quick, accurate adjustments
5. Portable coolant tank for ease of coolant replacement
6. Vane type hydraulic pump for fast longitudinal table travel

To serve you—

Your inquiry concerning your specific grinding needs will receive prompt attention. Grand Rapids Grinders include: Hydraulic Feed Surface Grinders, Universal Cutter and Tool Grinders, Hand Feed Surface Grinders, Drill Grinders, Tap Grinders, and Combination Tap and Drill Grinders.

GRAND RAPIDS GRINDERS

GALLMEYER & LIVINGSTON COMPANY

200 Straight, S. W., Grand Rapids 4, Mich.

FIRST LINE OF DEFENSE

America's Great Production Machine—once again the arsenal of democracy—runs on oil and grease. And, among buyers of industrial lubricants, Socony-Vacuum is the *first-choice supplier!* Here's why . . .

Famous Gargoyle lubricants are unsurpassed in quality—constantly improved by Socony-Vacuum research. They are backed by 85 years of lubrication experience . . . are recommended by more machine builders than the products of any other oil company. Performance records, in thousands of plants, prove they help increase production, reduce friction and power losses, lower maintenance costs.

Socony-Vacuum—with more lubrication engineers serving industry than any other oil company—can help improve production performance in *your* plant. Why not give us a call?

GARGOYLE Lubricants

SOCONY-VACUUM

Socony-Vacuum

Correct Lubrication

WORLD'S GREATEST LUBRICATION KNOWLEDGE AND ENGINEERING SERVICE

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates: MAGNOLIA PETROLEUM COMPANY • GENERAL PETROLEUM CORPORATION

MORE FLEXIBILITY IN YOUR SHOP

Harden, heat treat, temper and anneal with one furnace . . the Johnson No. 706.

Another in the Johnson line of dependable gas equipment has won its place in both large and small shops and plants. Operators like its easy adaptability. Six Johnson Direct Jet Bunsen Burners with individual shut off valves and pilot lights provide steady, easily controlled heat from 300 to 1850° F. Semi-muffled type with burners operating below Carbofrax hearth. Firebox: 7"x 13"x 16½". Also available bench style. Write for complete and factual information.

A smaller version of this highly flexible furnace is the No. 654. Four burners deliver 300 to 1800° F. Firebox: 5" x 7¾" x 13½". Available as pedestal or bench style.

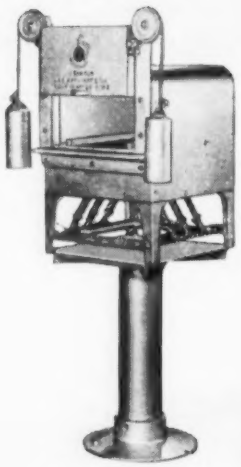
JOHNSON GAS APPLIANCE CO.

598 E Avenue, N. W., • Cedar Rapids, Iowa

Johnson No. 706 Pedestal Style $278.00
Bench Style $250.00

Johnson No. 654 Pedestal Style $150.00
Bench Style $124.00

F.O.B. Factory



Model No. 706

JOHNSON

INDUSTRIAL GAS EQUIPMENT

Furnaces • Burners • Torches • Valves • Mixers • Blowers

Why not use Perforated Metal?

This Wesix Electric Heater shows a typical application of Hendrick Perforated Metal, combining utility and attractiveness. The heater guard is 20 gauge steel, with 3/16" x 1½" side stagger perforations.

With facilities for producing any required shape and size of perforations in any commercially rolled metal, Hendrick invites inquiries from manufacturers who may be considering the use of perforated metal in connection with any of their products.

SEE OUR CATALOG IN SWEET'S

HENDRICK

Manufacturing Company

37 DUNDAFF STREET, CARBONDALE, PENNA.

Sales Offices In Principal Cities

Perforated Metals
Perforated Metal Screens
Wedge-Slot Screens
Architectural Grilles
Mitco Open Steel Flooring,
Shur-Site Treads, Armorgrids

Other Ferroalloys

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.
Carload . . . . . 9.50¢
Ton lots . . . . . 11.30¢

Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo. $1.15

Ferrocolumbium, 50-60%, 2 in x D, contract basis, delivered, per pound contained Cb.
Ton lots $4.90
Less ton lots 4.95

Ferro - Tantalum - columbium, 20% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta $3.75

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo $1.32

Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton $65.00
10 tons to less carload 75.00

Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots $1.55

Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $177.00

Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered $3.35

Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.
Openhearth . . . . . $3.00-$3.05
Crucible 3.10- 3.15
High speed steel (Primos) 3.25

Molybdic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa. $1.14
bags, f.o.b. Washington, Pa., Langeloth, Pa. $1.13

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound
Carload, bulk lump . . . . . 14.50¢
Ton lots, bulk lump . . . . . 15.75¢
Less ton lots, lump . . . . . 16.25¢

Vanadium pentoxide, 88-92% V_2O_5 contract basis, per pound contained V_2O_5 . . . . . $1.28

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.
ton lots . . . . . 21.00¢

Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.
carload, bulk . . . . . 7.00¢

Boron Agents

Contract prices per lb of alloy, del.

Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B $5.25

Bortam, f.o.b. Niagara Falls
Ton lots, per pound . . . . . 45¢
Less ton lots, per pound . . 50¢

Carbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4.5-7.5%, f.o.b. Suspension Bridge, N. Y., freight allowed.
Ton lots, per pound . . . . . 10.00¢

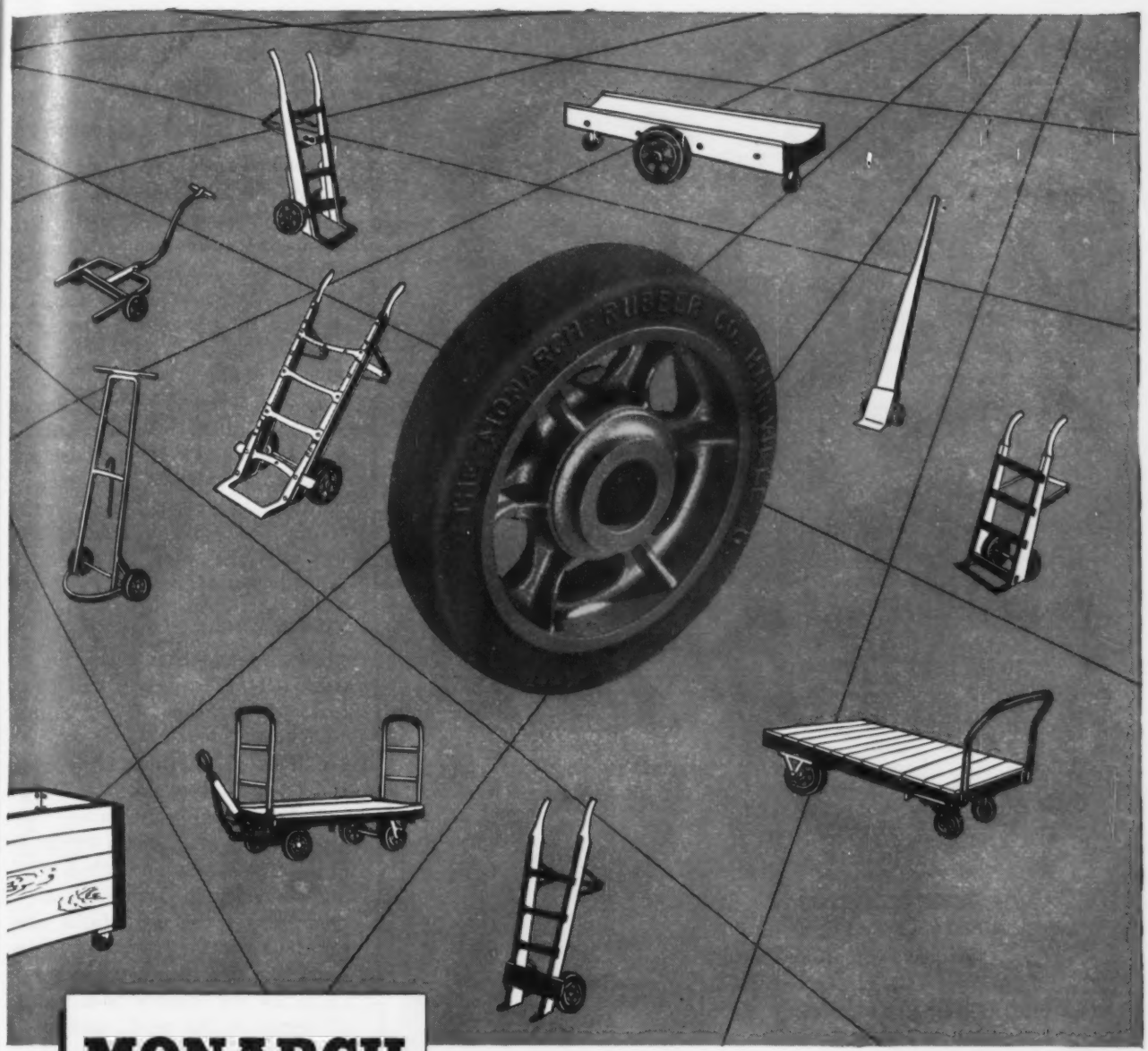
Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots $1.20
F.o.b. Wash., Pa.: 100 lb, up
10 to 14% B. 75
14 to 19% B. 1.20
19% min. B 1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.
No. 1 . . . . . $1.00
No. 6 . . . . . 68¢
No. 79 . . . . . 50¢

Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.
Ton lots $1.46
Less ton lots 1.57

Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.
Less ton lots $1.80

Silcaz, contract basis, delivered.
Ton lots . . . . . 45.00¢



MONARCH
CURED-ON
TIRES

Soft Touch for Floors

Easy-going Monarch Tires on your hand trucks will make your floors last longer, reduce your floor repair bills—Monarch Tires never groove or chip floors. Monarch-equipped caster wheels are instantly responsive to changes in direction. Make sure the hand trucks you buy are equipped with Monarch Tires. Available in oil-resistant synthetics.

The leading manufacturers of industrial trucks, both hand and powered, use Monarch Tires as original equipment.

THE MONARCH RUBBER COMPANY

301 LINCOLN PARK • HARTVILLE, OHIO

SPECIALISTS IN INDUSTRIAL SOLID TIRES AND MOLDED MECHANICAL RUBBER GOODS

here's why
"CERTIFIED"
SHOT and GRIT
is 2 ways
better!
1 MORE ECONOMICAL . . . "Certified" Samson Shot and Angular Grit save you money because they last longer . . . give you top-efficiency blast cleaning at lowest cost. Each grain is a solid homogeneous mass that wears slowly . . . can be used over and over.
2 CLEANS BETTER . . . Special automatically controlled hardening process gives "Certified" plenty of extra hardness to clean castings better. Order "Certified" today for faster, better, cheaper blast cleaning.
FEMA
Always specify "Certified"
ACCEPTED AND USED FOR OVER 55 YEARS
PITTSBURGH CRUSHED STEEL CO.
PITTSBURGH, PENNA.
STEEL SHOT AND GRIT CO.
BOSTON, MASS.

Sweden to Make More Sponge Iron to Recapture Lost Markets

Stockholm—Sweden is planning greater production and building new sponge iron plants to fend off harmful effects of high prices of charcoal pig iron and unwanted alloys of poorer scrap metal in making its high-grade steels.

With fuel costs of charcoal iron almost double those of coke pig iron and scrap in shortage and of poorer quality, Swedish steelmakers want to recapture lost special steel markets and jack up backsliding exports of quality steels to a pre-war point of 200,000 tons per year. Now, exports are 120,000 tons a year.

Planning New Plants

New sponge iron plants are being built at Sandviken and Hellefors, while Bofors, Gagersta, and Uddeholm companies are considering joint production of the material from Toulluvaara ore. Others are also planning furnaces.

The Sandviken works brings up the problem of unwanted alloying elements in scrap by saying that they cannot use outside scrap for their special steels. For many years the firm has been charging 15 to 20 pct sponge iron instead of scrap in its acid openhearth furnaces. Soderfors and Bofors also use heavy charges of sponge and domestic scrap.

The generally - used Wiberg-Soderfors process on a run with Grangesberg concentrate will make sponge with 94.5 pct reduction. If high enough in Fe content lump ore can be used. Soderfors is now testing Venezuelan ore to determine if it is suitable for a home industry in Venezuela.

A complementary method of making sponge, the Hoganas process uses a 71.2 pct concentrate from Malmbergot and has been supplying approximately half of America's needs. Sponge iron as a substitute for a scrap and to water down alloys has been considered in the United States where the Bureau of Mines conducted tests during World War II. The report was favorable.

FERRACUTE PRESSES
Complete line. Mechanical power presses 32 to 500 tons. Since 1863.
FERRACUTE MACHINE CO., *Bridgeton, N. J.*

If It's Action You're After . . .

Advertise it in The Iron Age. Those who make the buying decisions in metalworking watch The Iron Age advertising pages closely.

PERECO
ELECTRIC
FURNACES AND KILNS

★ Clean heat, accurately controlled. Wide choice of models for research, pilot plant, and production. Standard units for temperatures from 450° to 3000° F., or special research equipment up to 5000° F., to meet *your* needs.

WRITE FOR DETAILS TODAY

PERENY EQUIPMENT COLUMBUS OHIO
PERENY Equipment Co.
Dept. S, 893 Chambers Rd., Columbus 12, Ohio, U. S. A.
EXPORT DEPT. The Inland Export Co., Inc. Greer Bldg., New Castle, Pa., U. S. A.

THE CLEARING HOUSE

FOR SALE

SLOTTED HEADLESS STEEL SETSCREWS

70M	#0-40 x 1/2"	Oval Point	N.P.
35M	8-32 x 1/4"	Oval Point	Plain
11M	10-32 x 5/16"	Flat Point	Plain
15M	8-32 x 3/4"	Cup Point	Plain
25M	10-32 x 3/8"	Cup Point	Plain
500M	1/4-20 x 3/16"	Oval Point	Plain
45M	1/4-20 x 1"	Cup Point	Plain
15M	5/16-18 x 1/4"	Cup Point	Plain
10M	5/16-18 x 1/2"	Cup Point	Plain
60M	5/16-18 x 5/8"	Cup Point	Plain
15M	3/8"-16 x 3/8"	Cup Point	Plain
100M	5/16-18 x 5/8"	Flat Point	Brass

BRASS MACHINE SCREWS

25M	5-40 x 13/16"	Rd. Head	N.P.
125M	4-36 x 5/8"	Flat Head	Plain
25M	4-36 x 19/32"	Rd. Head	Plain
50M	5-40 x 3/8"	Flat Head	N.P.
60M	5-40 x 7/16"	Rd. Head	N.P.
35M	4-40 x 3/4"	Rd. Head	Plain
85M	4-36 x 5/8"	Flat Head	Plain
38M	6-4C x 3/8"	Fill. Head	Cadmium
64M	6-40 x 1/4"	Fill. Head	Cadmium
20M	8-40 x 7/8"	Rd. Head	N.P.
130M	6-40 x 1 1/8"	Rd. Head	Plain
100M	8-32 x 5/8"	Binder	N.P.
50M	10-32 x 3/4"	Oval Head	N.P. Pointed
40M	12-24 x 13/8"	Rd. Head	Plain
35M	12-24 x 1 5/8"	Rd. Head	Plain
25M	1/4-20 x 1"	Flat Head	Plain

Many other sizes in stock. Send us your inquiries.

GENERAL BOLT & NUT CORP.
5676 TWELFTH STREET
DETROIT 8, MICHIGAN

FOR SALE

PAWTUCKET #3 UPRIGHT SHEAR
Motor drive but no motor. Capacity two bars 3/4" round at the same stroke; 4" x 1/2" flat.

LONG & ALLSTATTER #4 PLATE-SPLITTING AND BAR SHEAR
Splits and trims long or wide plates 1/2" thick, shears flats 4" x 3/4", rounds 1 1/4", and angles 2 1/4" x 2 1/4". The body is made of cast steel. Excellent condition. Capable of a wide range of work in mill or scrap yard. Knives 8" x 7/8". The rating of this shear is conservative being based on continuous operation. Requires small floor space.

ROCKAWAY ROLLING MILLS
ROCKAWAY NEW JERSEY

SALE or RENT

1—3000 cu. ft. P&H Syn. Motor Driven Comp., 500 HP. 3/60/2200V.
1—¾ Yd. Koehring S, C & Shoe UD14 Diesel.
1—820 Lorain Dragline D13000 eng. Shovel. Attach. avail.
1—#6 N.W. Shovel & Dragline D13000.
1—5 Ton 3 motor Underhung AC Floor Oper. Crane 21'4" Span.
2—30 & 40 Ton Orton Diesel Loco. Cranes.
1—30 Ton Browning Steam Loco. Crane, 1941.
1—45' Boom for Link Belt LS90—New.

B. M. WEISS COMPANY
Girard Trust Co. Bldg. Philadelphia 2, Pa.
Rittenhouse 6-2311

GANG PRESSES

WILLIAMS & WHITE 300 ton and 500 ton with 12' Beds Motor Driven. In excellent condition. Still set-up. Priced reasonable for immediate sale.

National Machinery Exchange, Inc.
128-138 Mott Street New York, N. Y.
"IF IT'S MACHINERY, WE HAVE IT"

SHEET METAL MACHINERY

1—10' ¼" LEAF TYPE POWER D&K BRAKE
WICKES PYRAMID FORMING ROLL, 18' ½" Cap.
#0 BUFFALO ANGLE ROLL
USED BUFFALO #5 POWER BAR CUTTER, D.M.D.
D & K PR. BOX & PAN BRAKE, 8' 10 Ga. 12" Fing.
QUICKWORK ROTARY SHEAR ¼" Cap.
RING & CIRCLE SHEAR PEXTO, 3/16" Cap.
K&R #17 WRAPPING BENDING ROLL, 3/16" 66"
MAPLEWOOD ELBOW MACHINE
NIAGARA POWER GROOVER, M.D., 96" x 20 Ga. Cap.
D & K PR. BOX & PAN BRAKE, 4' 10 Ga. 6" Fing.
NEW MILTON SLIP ROLLS 3" to 6" 3' to 10', 16 Ga. to ¼"
1—RYERSON SERPENTINE SHEAR, M.D., ½" Cap.

MILTON EQUIPMENT CO.
N.E. Cor. 4th & Race Sts., Phila. 6, Pa.

Save $3,000.00

NEW

Landis 10" x 36" Type CH
Plain Hydraulic
Cylindrical Grinder

JOHNSON MACHINERY COMPANY
59 Edison Place, Newark, N. J.
Mitchell 3-7608

4-36 CINCINNATI PLAIN HYDRAULIC MILLER

LATE MODEL • EXCELLENT CONDITION

FITZPATRICK & WALSH
2439 N. 9th STREET PHILADELPHIA, PA.
STevenson 7-4503

LATE MODEL TOOLS

No. 3L GISHOLT H.D. Saddle Type Turret Lathe, Cross Sliding Turret, New 1945

18" x 30" LODGE & SHIPLEY Selective Geared Head Engine Lathe
No. 3H K&T CINCINNATI HI Speed Vert. Miller
No. 1/2B P&W Two Spindle Reaming Machine, 1944
20" G&E Industrial Shaper
No. 145 CLEVELAND Rigid Hobber
No. 12 FELLOWS Gear Shaver
No. 1LMS LELAND-GIFFORD 6-spindle Drill, 1942
No. 725A FELLOWS H.S. Gear Shapers
H-3 BARNES "Hydram" S.S. Drill

WIGGLESWORTH MACHINERY CO.
193 Bent St., Cambridge 41, Mass.

8' American Triple Purpose Radial Drill
#35 Landis Horizontal Boring Mill
4'13" Carlton Radial Drill
Model H-3 Barnes Hydram Drill
BL-2416 Keller Duplicator
18" x 50" centers Bradford Lathe
#174 Heald Internal Gap Grinder
28/120 Cincinnati Horizontal Hydrotel
#612A Fellows Gear Shaper
48" x 48" x 17' Powell Planer

Hazard Brownell Machine Tools, Inc.
350 Waterman St., Providence 6, R. I.

Southern Engineering Bending Machine, H.D.
12 Spindle Moline Automatic Drill, capacity 180—1/8" holes, 36" Rotary Automatic Indexing Table.

CONTINENTAL SALVAGE & MACHINERY CORP.
1836 Euclid Ave. Cleveland 15, Ohio

CONSIDER GOOD USED EQUIPMENT FIRST

AIR COMPRESSORS

975 cu. ft. Worthington 17"x10½"x12", With 150 H.P. Synch. Motor 440/3/60. 100# Pressure

1042 cu. ft. Ingersoll Rand XCB2 20" x 12"x16", With 200 H.P. Synch. Motor 440/3/60. 100# Pressure

BENDING ROLL

26' Southwark Pyramid Type Plate Bending Roll 24" Diameter Top Roll, 16" Diameter Bottom Rolls, Power Elevation of Top Roll. Elec. Equipment Included

CRANE TROLLEY

50 ton Harnischfeger Trolley and Hoist Current 220/3/60 with G.E. Controllers Trolley Gauge 115", Trolley Rail to top of Trolley 51¼"

FURNACES—MELTING

10 ton Heroult Electric Melting Furnace, With 4000 KVA Penna Transformer 3 phase, 60 cycle, 25,000 volt Primary, 250/92 Volt Secondary

HAMMERS—STEAM DROP

8000 lb. Chambersburg Steam Drop Hammer. 20 to 1 Steel Anvil (two piece) Safety Cap Cylinder

MILLING MACHINE—PLANER TYPE

56" x 30" x 18' Ingersoll Adustable Rail Slab Milling Machine. Equipped with Trabohn Coolant Pump and 75 H.P. G.E. Induction A.C. Motor

PRESS—HYDRAULIC FORGING

1000 ton United Steam Hydraulic Forging Press Complete with Accumulator, Intensifier, Tools and 8000 lb. Alliance Straight Line Floor Type Manipulator

PRESS—TRIMMING

No. 58 Bliss-Consolidated, With Side Trimming Arm. Approx. Stroke 8", Top of Bolster 54" x 32", Motor Driven, Elecl. Equipment Included

PULVERIZER

Babcock & Wilcox Size E32, Class 221-BA Pulverizer. Complete with Table Feeder, Pulverizer Fan, Elecl. Equipt. Capable of grinding 7575 lbs. coal per hr.

ROLLING MILL

23" x 60" Mackintosh Hemphill Three High Breakdown Mill, Cast Steel Housings, Motor Driven Screw Downs. Complete with Pinion Stand, etc.

SHEAR—BAR

Mesta No. 8 Vertical Cold. Bar Shear, Maximum Capacity 6" O.D. Carbon or Alloy Steel. Complete with Elecl. Equipment. New—Never Used.

STRAIGHTENERS

No. 6 KANE & ROACH SHAPE STRAIGHTENER, Belt Drive. Capacity 5x5x⅝" Angles, 2¾" Rounds & Square. 6x1" Flats, etc.

No. 7 Kane & Roach Shape Straightener, Belted Motor Drive. Capacities 3¾" Round & Square, 8"x1¼" Flats, 6x6x1" Angles, 18" I-beams & Channels

TESTING MACHINES

100,000 lb. SOUTHWARK-EMERY Universal Hydraulic Testing Machine

400,000 lb. Amsler Hydraulic Compression Testing Machine. Three dials with graduations for max. loads of 400, 1000, 8000, 20,000, 160,000 and 400,000 lbs.

RITTERBUSH & COMPANY INC.
50 Church Street, New York 8, N. Y.
Phone—Cort 7-3437

The Clearing House

NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Cause for Mystification—Washington conferences among Economic Stabilization Agency, National Production Authority, and members of the used machinery field were expected to clarify confusion as to the scope of price controls on used machines and equipment.

A survey of used machinery firms in New York last week disclosed almost complete mystification in **regard to price** controls. Some admitted that used machinery may be covered by the general control order while others stated confidently that the field was still free. Another check with the local ESA office yielded information that used machinery was covered.

Someone Who Should Know—The machine tool rebuilding field, which was lagging not too long ago, is booming to near-capacity operations, Charles A. Simmons, Sr., dean of the industry and president of the Simmons Machine Tool Corp., Albany, N. Y., told THE IRON AGE.

"The huge stocks available 90 days ago, including many held for 3 years, are gone, leaving mostly large special purpose tools on hand," said Mr. Simmons. "Six to 10 weeks is the average delivery time on rebuilding orders."

Still Some Capacity—Despite the sharp upswing caused by intense demand for equipment, machine tool rebuilders still have substantial capacity to take on new business, stated Mr. Simmons.

He continued that industry would have unlimited capacity at its disposal if the hundreds of used machinery builders who now merely paint and polish would devote their facilities to rebuilding and "thus serve industry's requirements."

Again on Prices—Mr. Simmons, who was World War II chief of the used tool division of the office of Production Management, contends that realistic price ceilings are needed immediately. He favors reemployment of the system used in World War II, with modifications to compensate fairly for rebuilt products.

Heard around the country is a rising complaint that rebuilding capacity is inadequate. Assurance of fair compensation for rebuilt products would be vital to nurturing a capable and sufficient machine rebuilding industry.

Advantages of Organization—Overall industry stands at the doorstep of fast-stepping crisis production.

There is an advantage to organization of used machinery dealers. National organizations can immediately classify them and supply important information to the government in filling defense requirements. It means that a dealer can put himself in the position of serving his country—and make certain that he will not miss any business.

Demand Spurred—Detroit demand for used machinery has picked up during recent weeks. Demand for tool room equipment is particularlly potent.

In the production fever of World War II, many sellers of used machinery set up shops "in back of the warehouse" to take on war contracts. This trend is not yet evident in Detroit but the war work rush may soon revive it.

Machine Rebuilding—This area has also seen machine rebuilding on the upswing but it is retarded by shortage of skilled manpower. Some believed that extensive layoffs from auto plants because of cutbacks would release enough men into the labor pool so that the rebuilders could grab off their share.

But makers of new tools have such large backlogs that their plants are reportedly absorbing skilled workers as soon as they leave the auto industry's door.

IRON AGE

editorial

First Things Come First

NO one in his right mind would deny that defense orders should come first, should be produced quickly and that sacrifices should be made. Industry is not only ready to do what the armed forces and the government want but it is putting the needle in for speed.

There is alarming talk coming from Washington about drastically cutting back this or that. We hear that the auto industry will be cut off from so much steel as they have been denied non-ferrous metals. That is well and good—*if* the government has the orders that will immediately use up the material that has been cut back.

Appliances, toys and what not may soon be restricted by the National Production Authority. That is all right too if the material saved by the cutback can be used for defense purposes. But the story up to this time does not speak too well for some of Mr. Wilson's departments.

The Defense Act specifically says that defense and indirect defense items should have the right of way. That goes without saying. The American people are not only in favor of that but they think the government is moving at a snail's pace.

There are no cases where the armed services are not getting complete cooperation from steel and other basic industries. But there are cases where industry is not getting cooperation from government.

Some companies are rushing production of material—on orders from Washington—when the plants to make the end product haven't even tooled up. There are cases where there has been no integration of the program as a whole. Scarce material is being taken from the civilian economy before defense programs can take it.

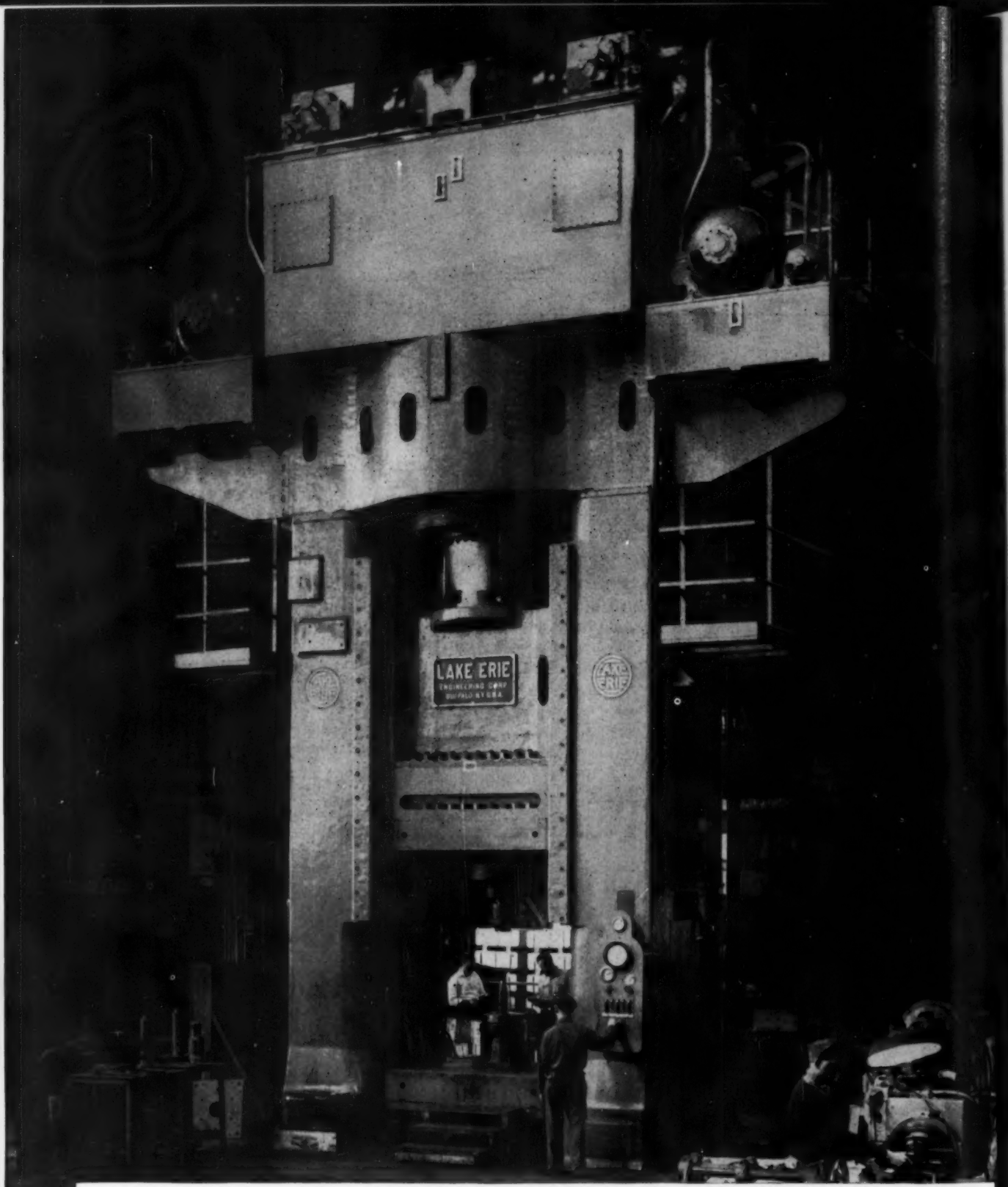
You expect a certain amount of this looseness in tooling up for defense. We had it before and we will have it again. But this time we are not in an all-out war. The economy has to be strong to take care of huge expenditures and taxes for defense. If we waste by making haste before a program is ready we hit that economy where it hurts—in unemployment and loss of production.

The law also says that after the defense program has been adequately taken care of the rest of the material being made by industry should be equitably distributed throughout the civilian economy. That is not the trend today. The NPA seems interested in cutting back specific industries like autos and appliances. The Defense Act doesn't read that way.

Industry should be cut back on non-defense activity when and as the armed services get their orders in. To cut back on any civilian activity before defense orders are ready to absorb the cutback is not only foolish, it is dangerous.

Tom Campbell

Editor



FIRST PRESS DESIGNED AND MANUFACTURED IN THE UNITED STATES FOR THE COLD EXTRUSION OF STEEL

● Developed by Lake Erie Engineering Corporation in collaboration with Mullins Manufacturing Corporation of Salem, Ohio.

Press has a bed area 72″ x 60″, 108″ daylight opening and 60″ stroke. It stands 35′ 39″ above the floor and extends 21′ below the floor, where a 250 ton hydraulic ejector is located in the bed of the press. The press weighs over 700,000 pounds and is complete with a high-speed self-contained pumping unit, powered by 900 HP motors. Many of these specifications are in excess of those required for production equipment and are incorporated in the press to provide flexibility for experimental and research work.

IRON AGE *summary*

iron and steel industry trends

Small firms hit by cutbacks . . . But defense orders aren't taking up the slack . . . Big tooling lag a factor . . . NPA readies CMP.

NEVER was the pain of an economy shifting from peace to war goods more evident than it is this week. Dr. NPA is finding that Mr. Economy is a very sensitive patient, who requires extremely accurate medication. Too much stimulant here or too little sedative there might prove fatal.

This week injured members are sending cries of protest through the patient's nervous system. Hardest hit, as usual, are the small metal fabricators. They are being starved by material cutbacks. Juicy defense contracts, which could nourish them are not being received in quantity. Many of these small fabricators will eventually get defense contracts or subcontracts—if they can hold out that long. Meanwhile, they are in a tough spot and making themselves heard.

Dislocation from War Work Shift

This economic dislocation largely results from the time lag in shifting production from peace to war goods. Some of the major contracts that already have been placed will require as much as 18 months for tooling up before assembly line production can begin. This explains why the machine tool industry is staggering under an ever increasing backlog of orders, while many small manufacturers face production curtailment. Many of them cannot weather such a long storm.

The small manufacturer's salvation is to land a defense contract or a subcontract. To do this he must sell the one product he has left—productive capacity.

Increasing the limits of defense (DO) orders which steel mills must accept is also hitting the small manufacturer—especially if his steel has been coming from mills now forced to roll plate on sheet or strip mills. For example, the increase to 20 pct on carbon plates and 17 pct on hot-rolled sheets means that the hot-rolled sheet producer using his mill for rolling plates is diverting at least 37 pct of his sheet capacity to DO orders. This does not include tonnage he must provide for essential civilian programs, warehouses, and non-integrated mills. During the second quarter some mills will be channeling more than 50 pct of their hot-rolled sheet into essential programs.

Means Greater Loss of Sheets

Any increases in orders for tank plate will multiply the effect on sheet production. One producer estimates that every ton of tank plate produced on a sheet mill means a loss of 4 tons of sheet. This is due to the rigid specifications for this type of plate and the extreme care required in processing it.

In addition to existing allocation programs, the following are slated to start in May: Merchant vessels, barges, locomotives for the U. S. and Canada, oil country goods and wheel head equipment for the petroleum industry, maritime ship program, ocean-going ship repair, drums and pails. Still under consideration are heavy power equipment, power plants and highways. It is estimated that these programs will take about a million tons of steel during May.

The National Production Authority seems determined to install its new controlled materials plan on steel, copper and aluminum on July 1—ready or not. Unless a lot of detail work is done between now and then, they will not be ready. CMP in name only, or prematurely installed, could do more harm than good.

CMP Needs a Lot of Spadework

Just putting the CMP label on a plan will neither guarantee priorities nor guide production. To be effective CMP will have to be preceded by long and careful planning, detailed screening of material, requests from all types of consumers, and a selective buildup of administrative people.

Steelmaking operations this week are scheduled at 99.5 pct of rated capacity, up 1 point from the previous week.

(nonferrous summary, p. 120)

The 3 R's of Reliance Service

RELIANCE
Job-Fitted
PRODUCTS AND SERVICES

COLD ROLLED STRIP STEEL

Coils . . . Cut Lengths . . . All Tempers
Slit, Sheared, Deburred
and Round Edge
From WAREHOUSE
or
DIRECT-FROM-MILL

SHEETS

Cold Rolled . . . Hot Rolled
Hot Rolled Pickled . . . Long Terne
Galvanized
Standard or production sizes
or cut to actual working
dimensions
from
WAREHOUSE STOCKS

Big plants . . . .extensive processing, handling and shipping facilities . . . a widespread organization — all these things help make Reliance Service *resourceful* and *responsible*.

But the things that make Reliance Service *responsive* are not measured by size or number. Over the years they reflect a concern's attitude toward its customers and their needs . . . a readiness to work closely with them . . . almost as an integral part of their business.

In our case they spell 28 years of day-in and day-out specialized experience, living with and licking sheet and strip steel problems . . . knowing the possibilities as well as the limitations of our products . . . knowing how they can best fit your jobs.

DEPENDABLE DAN
OUR CUSTOMERS' MAN

Reliance Job Fitting Service is a way of doing business that works for you . . . whether steel is plentiful or scarce, in peace time or in war (either cold or hot).

STEEL—BACKBONE OF AMERICA'S ARMAMENT

For Immediate Action Call The Nearest Reliance Plant or Office:

DETROIT STEEL CORPORATION

PRODUCERS OF
Coke and Coal Chemicals • Pig Iron • Ingots
Slabs • Sheet Bars • Billets • Wire Rods
Manufacturers' Wire • Merchant Wire Products
Welded Fabric • Cold Rolled Strip Steel

GENERAL OFFICES
DETROIT 9, MICHIGAN

COPYRIGHT 1951 D S C

RELIANCE STEEL DIVISION

Processors and Distributors JOB-FITTED Sheet and Strip Steel

GENERAL OFFICES — BOX 4308 — PORTER STATION, DETROIT 9, MICHIGAN

PLANTS

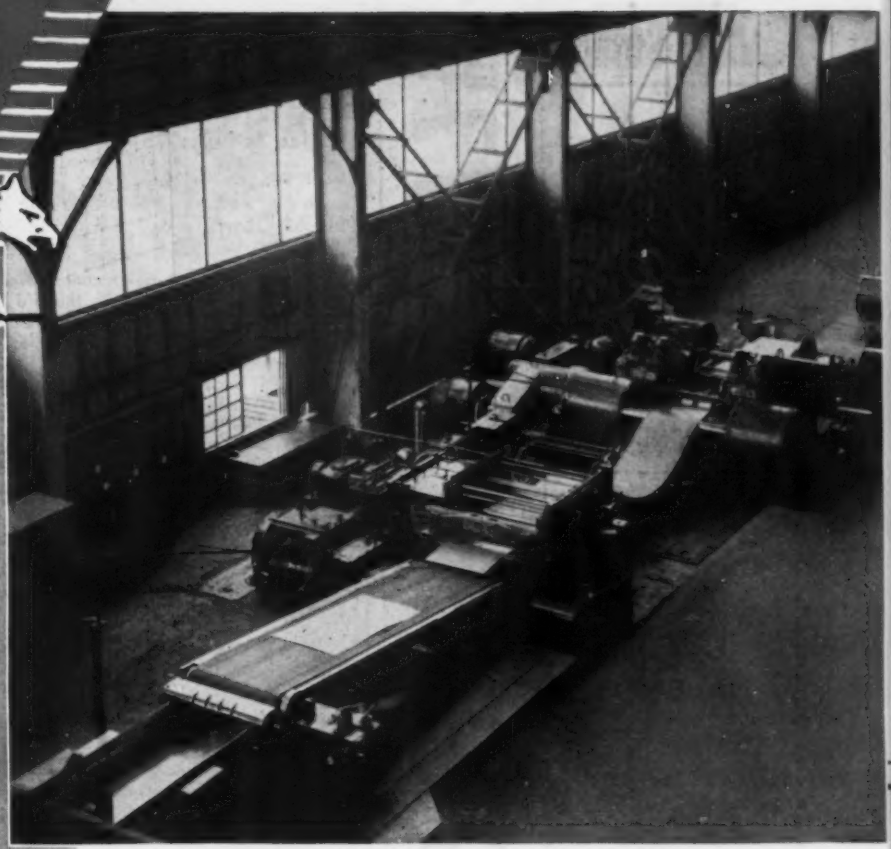
CLEVELAND PLANT, 3344 E. 80th St., VUlcan 3-3600, Cleveland 4, O.
DETROIT PLANT, 13770 Joy Road, WEbster 3-5866, Detroit 28, Mich.
EASTERN PLANT, State & Edmund Sts. (Hamden), New Haven 7-5781, New Haven 7, Conn.
MIDWEST PLANT, 1601 South Wolcott Ave., CAnal 6-2442, Chicago 8, Ill.

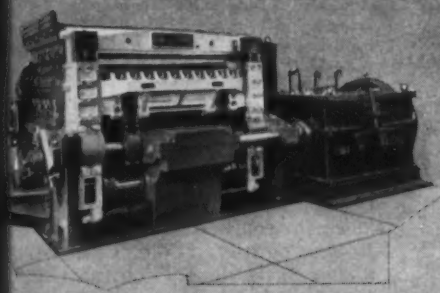
OFFICES

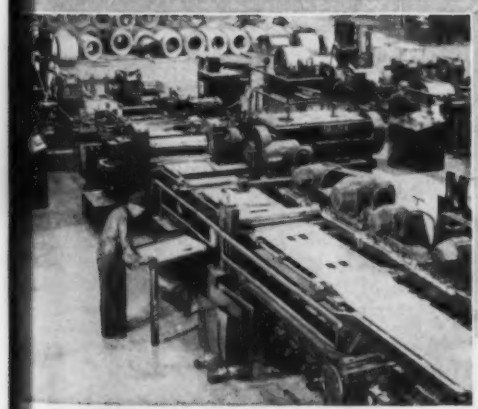
DETROIT 28, MICH., 13770 Joy Road, WEbster 3-5866
GRAND RAPIDS 2, MICH., 326 Keeler Bldg., GLendale 6-9569
INDIANAPOLIS 4, IND., 1400 Fletcher Trust Bldg., FRanklin 3429
JACKSON 18, MICH., 801 Reynolds Bldg., JAckson 3-3258
NEW YORK 19, N. Y., 250 West 57th St., COlumbus 5-4870
ST. LOUIS 8, MO., 4053 Lindell Blvd., LUcas 4550
TOLEDO 4, OHIO, 2114 Ohio Bldg., GArfield 8384
WORCESTER 8, MASS., 330 Main St., WOrcester 5-9686

WEAN

SHEET AND TIN PLATE SHEARING *Lines*







HIGH-SPEED, high-tonnage production . . . unsurpassed accuracy . . . rugged construction that minimizes operating and maintenance costs.

Modern Wean sheet and tin plate shearing lines for converting strip in coil form to flat sheets provide all these advantages.

ECIALISTS IN SHEET, TIN
STRIP MILL EQUIPMENT

THE WEAN ENGINEERING CO., INC.
WARREN, OHIO

AIRCRAFT
QUALITY
Alloy Steels

AVAILABLE FOR IMMEDIATE SHIPMENT FROM OUR CHICAGO WAREHOUSE.

SPECIFICATIONS

AMS 6260
AMS 6270
AMS 6272
AMS 6280
AN-S-14A
AMS 6324
AMS 6415
AN-QQ-756A
AMS 6320 (Hex)

ROUNDS—HEXAGONS
COLD DRAWN
HOT ROLLED

WE SEND A CERTIFIED ANALYSIS WITH EVERY AIRCRAFT SHIPMENT, AND THE RESULTS OF JOMINY HARDENABILITY TESTS WHERE NECESSARY.

OUR COMPLETE STOCK LIST OF AIRCRAFT, ALLOY & 1045 HR SENT UPON REQUEST.

HY-ALLOY STEELS CO.
30 N. LASALLE
CHICAGO 2, ILL.
RAN. 6-5253

Dear EDITOR

letters from readers

Which Is Legal?

Sir:

In the Jan. 4 issue under the heading of "How To Sell To Uncle Sam," on p. 270, you state that:

> "An important point concerns obtaining of contracts with the aid of an agent (a full-time employee is not considered an agent) or what is sometimes known as a "five per-center" because he works on a commission basis. There is no law against employing an agent to look after a supplier's interests or even to obtain government contracts. But, and this is a big if, if such is done it must be reported on the contracts together with the amount of the fee paid. Failure to do so is cause for cancellation. And payment on a contingency or commission basis is definitely forbidden—only specific salaries or fees are permitted."

Frankly, I am not able to make head or tail out of this statement; in one section you interpret this to say that so long as the contractor states that he is paying a fee, together with the amount he is paying to a bonafide agent, that such a fee is permitted. On the other hand you state that a contingency or commission basis is definitely forbidden.

J. W. MOORE
John Moore Specialty Co.
Chicago

The situation is this: It is legal for a contractor to include in his cost a salary or flat fee paid to an agent, but it is illegal to include a percentage brokerage or commission fee for individual contracts.—Ed.

Wants Steel Piles

Sir:

I am trying to find out whether or not there is on the market, a steel post which could be driven into the ground to support a frame garage, as a substitute for laying a cement foundation. Could you refer me to a company which might be most apt to have such a product in its line?

P. G. PRESCOTT
Chicago

Although heavy structural steel bearing piles are frequently used to support large buildings, we don't know whether anything is made which would be feasible or within reason from a cost standpoint for a frame garage. A call to a local office of Joseph T. Ryerson & Sons, Inc.; Ceco Steel Products Co.; Bethlehem Steel Co.; or U. S. Steel Supply Co. there in Chicago should serve to settle the possibility one way or the other.—Ed.

Needs Prompt Delivery

Sir:

I am trying to contact those concerns who are in position to build a large 400-ton high speed self-contained joggling and forming press, all steel "C" frame type. I have already been in contact with a number of the larger machinery manufacturers, but none of them are able to take on additional business for prompt delivery.

L. S. PECK
Portland, Ore.

The possibility of securing prompt delivery on a 400-ton C-frame hydraulic joggling and forming press is rather remote; it may be necessary to go a little farther afield than normally in the hope that some other press firms may have patterns and be able to take on the work. Perhaps some of our readers can offer suggestions??—Ed.

Special Tubing Required

Sir:

We have a recollection of seeing recently advertisements or notices of a company who constructs a multi-walled pipe by rolling a sheet and welding the outside. The process would seem to solve a problem we now have and we would like to get in touch with the manufacturer of such pipe. Can you supply the name?

G. C. WHEELER
Engineering Dept.
North American Philips Co., Inc.
Lewiston, Me.

Bundy Tubing Co., Detroit 14, Mich., manufactures a double-walled tube made from a single strip which is rolled and then welded.—Ed.

Prompt Service

Sir:

We wish to thank you for the very prompt attention given our wire request for copies of the article by D. L. Brown entitled "Cold Extrusion of Shells Saves Steel," in the Oct. 19, 1950 issue. The copies were received this morning. It is a very interesting article and several of our prospective customers requested copies of us.

G. D. MILLER
George D. Miller Co.
Cleveland

Timely Titanium Topic

Sir:

With the potentialities of titanium looming rather large on the metallurgical horizon, we wonder whether you would be good enough to inform us which domestic companies seem to hold the largest reserves of this material.

R. A. BING
Head of Research Dept.
Sutro & Co.
San Francisco

From recent reports, the Quebec Iron & Titanium Corp., 120 Broadway, New York, probably has access to the largest reserves of titanium ore in this hemisphere. There are no actual reserves of the metal and most production is currently going into research and development projects.—Ed.

Another *cost-saving advantage* for users of

B&W

MECHANICAL TUBING...

TAILOR-MADE FORMABILITY

TO SATISFY ANY FABRICATION AND END-USE REQUIREMENTS

You have a wide choice of B&W MECHANICAL TUBING

TYPES—Seamless (hot finished, cold drawn or rocked.) Welded (from hot or cold rolled strip.)
GRADES—Carbon, Alloy, and Stainless Steels.
SIZES—Up to 9-5/8" O. D. in full range of wall thicknesses.
QUALITY—Open-hearth and electric furnace steels, including aircraft and magnaflux qualities.
CONDITION—Unannealed, annealed, tempered, normalized, or otherwise heat-treated as required.
SURFACE FINISHES—As rolled, as drawn, as welded, flash removed, turned, scale-free, and polished.
SHAPES—Round, square, rectangular, oval, streamlined, and special shapes.
FABRICATION—Upsetting, expanding, bending, safe-ending, and machining.

Illustration shows part hydraulically formed to precision tolerances from B&W Welded Stainless Croloy 16-13-3 Tubing (type 316). Concentric ends have same diameter and wall thickness of original tubing. Ask your B&W Tube Representative about your tube forming problems. He may help you uncover economies in selecting, ordering and fabricating.

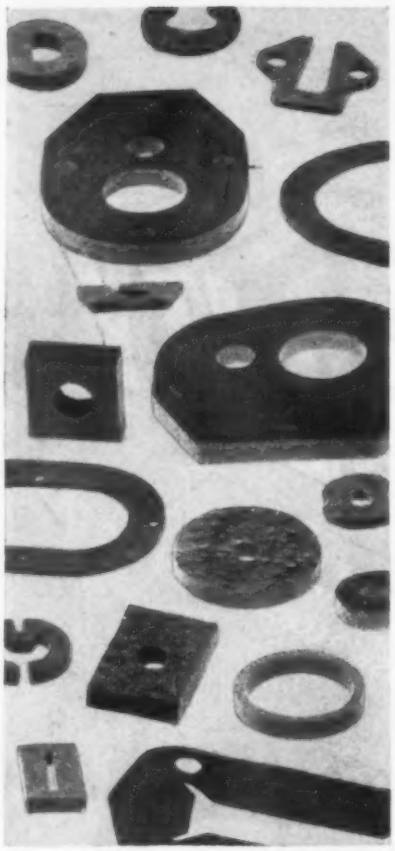
B&W SEAMLESS and WELDED TUBES

THE BABCOCK & WILCOX TUBE COMPANY

General Offices: Beaver Falls, Pa.

Plants: Alliance, Ohio, and Beaver Falls, Pa.

Sales Offices: Alliance, Ohio • Beaver Falls, Pa. • Boston 16, Mass. Chicago 3, Ill. • Cleveland 14, Ohio • Detroit 26, Mich. • Houston 2, Texas Los Angeles 15, Calif. • New York 16, N. Y. • Philadelphia 2, Pa. St. Louis 1, Mo. • San Francisco 3, Calif. • Syracuse 2, N. Y. Toronto, Ontario • Tulsa 3, Okla.



for top precision

Production to close tolerances mostly applies to metal working. But the technique of Western Felt production and processing has built an enviable reputation for engineering precision.

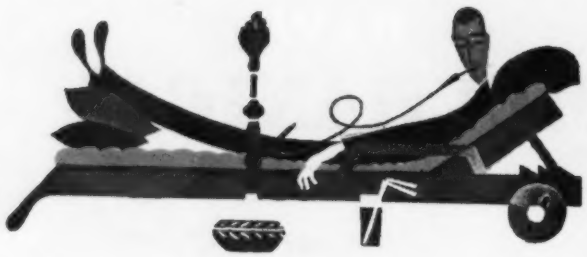
Chemical specifications must be perfectly met—parts from wool softness to rock hardness are cut to close tolerances. As an extremely versatile material Western Felts are resilient, flexible, compressible. They resist oil, water, heat, age—do not ravel, fray or lose shape. New uses found daily. It pays to depend on Western Felt.

Check Possible Uses for Your Product

• Excluding dirt, grit, dust • Retaining lubricants • Thermostatic insulation • Isolating vibration • Cushioning shock • Padding, packing, seals • Air and liquid filters • Gaskets, channels, etc. • Grinding, polishing, etc. • Weight reduction • Instrument mounts

WESTERN Felt WORKS

4035-4117 Ogden Ave., Chicago 23, Illinois
Branch Offices in Principal Cities



Fatigue Cracks

by Charles T. Post

Brass Tacks

This matter of getting down to brass tacks seems a lot easier since reading our erudite British contemporary, *"The Metal Bulletin."* Probably no one but an upholsterer has very much direct contact with brass tacks, as such. Brass tacks have always been something you got down to. Having a certain amount of pride, a growing paunch, and a lazy disposition, we've never cottoned up to the idea of getting down to anything, let alone brass tacks. Much nicer to recline on a couch with water pipe and glass nearby, as seen above.

The *Metal Bulletin*, however, recently came across a volume entitled *"A Dictionary of Rhyming Slang."* "Brass tacks," it turns out, is merely rhyming slang for "the facts." You can get down to them without stooping, use the terms interchangeably.

Oh, yes. It seems that rhyming slang for pipe is "cherry-ripe." If you happen to have a few thousand feet of cherry-ripe in your warehouse, your f.f.j.'s editors assure us it would be a pipe to sell it profitably.

Shortages

After learning last week that the scrap shortage was resulting in a wave of thefts of unguarded machinery and equipment, we were astounded to learn that impending shortages were having their effect on other fields.

The police of Perth Amboy, N. J., have picked up a woman worker at the plant of the Maiden-Form Brassiere Co., charged her with smuggling out 8000 brassieres—"parts at a time," whatever that would be—and stashing them away in her basement.

Since no woman we know needs 8000 brassieres, we can only assume that the thief saw a chance to cash in on an impending shortage, with possibly a sideline selling to owners of 1951 Fords with sagging radiator grilles. It all goes to show you can't check your plant security too closely these days, no matter what you make.

Puzzlers

Not all the nation's mathematical brains are in its factories. Had there been a prize for the first answer to come in to last week's code problem, it would have gone to Jim Carlin, head proof reader at the printing plant. Before the page on which Fatigue Cracks appears, was even printed on both sides, he figured out that HOT has a numerical value of 357 and that STUFF can be expressed as 47266. We'd say that Jim is pretty 357 47266, himself.

E. J. Sampson, Robert W. Huff, and Howard Fancher correctly deduced that the ladder in the February 8 problem is 41.633 ft long, the street 40.414 ft wide, and the base of the ladder placed 11.547 ft from the base of the taller building. Reader Sampson, Robert A. Wallace, McDowell Manufacturing Co., and S. A. Kenorf of Crucible Steel's Park Works correctly probed the cork cover on the steel ball. John W. Higby, Madrid, Iowa, finally drilled through the 2-in. cube mentioned last November.

T. H. Rattray, purchasing agent, Engelke Engineering, Inc., has a circular military type wrist watch. The second hand measures exactly ½ in. from the pivot to the outside end of the hand. He wants to know how many land miles the outside end of the hand travels, in its normal circular motion, for the period of a normal year. Actually, he knows, and wants you to find out.

machine tool high spots

sales inquiries and production

by W.A.Lloyd

January Shipments Dip—The peak which some experts predicted the machine tool business would reach this year appears to be virtually at hand. According to informed sources, January order volume may have been the highest since July, 1942, indicating a preliminary order index of possibly 450, compared with an index of 410 in December.

It is believed shipments dipped in January, due chiefly to shortages of materials, indicating a preliminary index of 115, compared with an index of 135 in December. As a result, backlog or the ratio of unfilled orders to shipments has increased, possibly to 13 or 14 to 1.

Exports Taper Off—Big increase in new order volume is the result of domestic placements. Foreign demand, says the trade, is tapering off.

The estimated decrease in shipments is serious in view of the machine tool requirements of the defense program and the growing shortage of machine tools which now exists. Companies are enlarging their subcontract work, and one company indicated that within a few weeks an estimated 60,000 hours of subcontract work will be coming into the shop for assembly.

Plug and Ring Gages—In Washington, standardizing and cataloging of commercial type plug and ring gages has been announced by the Munitions Board, Dept. of Defense. The development of military standards and cataloging will reduce to about 187,000 catalog items the more than 1 million descriptions of plug and ring gages previously used.

First series of military standards covering plain plug and ring gages constituting one-half of the total items under development have been approved for publication.

Buys British Firm—In Chicago, Independent Pneumatic Tool Co. has acquired all the stock of Armstrong Whitworth Machine Tools, Ltd., Newcastle, one of Great Britain's biggest pneumatic tool builders. Neil C. Hurley, Jr., Pneumatic president, said the purchase will permit increasing standardization of British and American tools for arms production. One reason for the move was to enable his firm to acquire a stronger foothold in world markets, he said.

Problems Before NPA—One of the machine tool industry's key suppliers, the anti-friction bearing industry, placed its problems in expanding facilities and obtaining alloy steel before NPA officials this week. The Anti-Friction Bearing Manufacturers Advisory Committee outlined the industry's requirements for alloy steel, machine tools, machinery, plant floor space and related facilities.

NPA officials told the committee that as orders for bearings to meet the growing needs of the defense program continue to increase during the next 2 years, it will become necessary to make some adjustment with respect to civilian use unrelated to the rearmament program.

Tool and Die Barriers—Shortages of special types of steel and manpower are hampering the tool and die industry, the Tool and Die Manufacturers Advisory Committee told NPA officials in discussing problems confronting the industry in preparing plants for war work.

NPA officials advised the committee to submit specific information on cases in which undue difficulty is encountered in obtaining supplies, so that steps can be taken to correct the situation.

Shortages of journeymen tool and die makers is causing the industry plenty of concern and government assistance was requested to help find a solution.

FREE *publications*

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just fill in and mail the postcard on the opposite page.

Current-Metering Manual

A new 40-p. manual of watthour meters comprehensively covers the fundamentals of alternating-current metering. Containing charts, diagrams and photos, the brochure shows how electricity is measured; describes operating principles of alternating-current watthour meters; and explains techniques involved in the use, testing and maintenance of meters. The brochure can be used as a reference in the meter schools of companies to show proper application and maintenance. *General Electric Co.*

For free copy insert No. 1 on postcard.

Fabrication Facts

"Beyond Your Blueprints" is the title of a new 16-p. illustrated catalog providing many useful facts regarding steel and alloy plate fabrication. It explains the many specialized techniques and services of this company in the fabrication of tanks and vessels for the petroleum and chemical processing industries. Another useful feature of the catalog is the extensive section devoted to corrosion data charts—which lists the resistance values of commonly used metals with reference to hundreds of chemicals. *Nooter Corp. Address requests to this column on company letterhead.*

Steam Capacity Chart

The new Mipco steam capacity chart provides means for determining steam capacity required from safety valves to give 100 pct protection in case of pressure-reducing valve failure. A typical example of a problem is given, with an explanation of how the chart is used for solution. *Marine & Industrial Products Co.*

For free copy insert No. 2 on postcard.

Two-Cycle Diesel Engines

The complete line of Series 71 2-cycle GM Diesel engines for application in the industrial, petroleum and marine fields is described in a new catalog. The book covers single and multiple engine units from 2 to 24 cylinders with power ranging from 32 continuous to 780 intermittent hp. It contains data on design and interchangeability of parts; a "Select Your Power" chart covering 57 standard power take-off and 7 torque converter models; engine illustrations and an outline of service facilities. *Detroit Diesel Engine Div., General Motors Corp. Address requests to this column on company letterhead.*

Self-Locking Nuts

Advantages of Greer self-locking nuts are presented in a new 8-p. stock and price list. Information on types, materials, dimensions and finishes for coarse and fine machine screw hex nuts, light and heavy weight nuts, and clinch nuts, is shown. Complete prices and discounts are listed. *Greer Stop Nut Co.*

For free copy insert No. 3 on postcard.

Rubber Compounds, Parts

A new 16-p. illustrated catalog lists by code number approx 30 compounds which are representative of more than 500 rubber stocks developed to meet special requirements. Full information is presented on compounds which feature resistance to abrasion, chemicals, high and low temperatures, petroleum products and their derivatives, and weathering. A special section deals with the recently-developed Silicone rubber compounds. *Stalwart Rubber Co.*

For free copy insert No. 4 on postcard.

Conveyer Chain Folder

A new 4-p. folder gives dimensions and pertinent data on S-815 flat-top conveyer chain and its cut tooth sprocket wheels — for the transportation of small containers, bottles, packages or parts through various operations. The bulletin shows how each pitch of chain consists of only a hinge type beveledged flat-top link, and a pin to hinge adjacent links to each other with an overlap, assuring a continuous, smooth carrying surface and smooth transfers. *Link-Belt Co.*

For free copy insert No. 5 on postcard.

For Drainage Problems

"An Economical Answer to Limited Headroom—Fast Runoff," is the title of a new, illustrated folder describing Armco Pipe-Arch and Multi-Plate Pipe-Arch, and shows why they carry more water than round pipe. Test data and case histories also show that they have more than sufficient strength to withstand both live and dead loads. The folder discusses erosion and corrosion problems and tells how to solve them. Tables give recommended sizes and gages to meet various loading conditions. *Armco Drainage & Metal Products, Inc.*

For free copy insert No. 6 on postcard.

Metal Corrosion-Proofing

Prufcoat metal reactive primer P-10, providing a simple 2-step system for corrosion-proofing old or moist metal surfaces, is described in a new technical bulletin detailing method of application and advantages. A question-and-answers section provides most of the necessary information about this new metal-treating formulation.

Turn to Page 103

NEW *production ideas*

new and improved production ideas, equipment, services and methods described here offer production economies . . . fill in and mail postcard.

Roll Temperature Unit

Measures temperature of moving roll surface without touching the roll.

Temperature detected by the unit is recorded automatically by either a Micromax or Speedomax instrument supplied as an integral part of the complete equipment. The recorder can be equipped to operate signals or controls. Applicable to roll diameters down to 9 in. and to flat surfaces, the new detecting unit operates independent of surface speed, emission characteristics, and finish. It can be mounted at the center of the roll or at any other location, wherever actual temperature measurement is desired. *Leeds & Northrup Co.*

For more data insert No. 20 on postcard.

Pivot Polishing Machine

Machine uses carbide or ceramic wheels for wet polishing pivots.

The Hauser Type 241 polishing machine will replace in many instances centerless grinding, it is claimed, and can be operated by unskilled labor. It polishes pivots straight, taper or radius and will polish shoulder at the same time as the cylinder at right angle or bevel. Mild steel, hardened steel, stainless steel, brass, nickel, bronze can be burnished. The machine takes work in collet or on centers. It is rated at 600 or more pivots per hr. *Hauser Machine Tool Corp.*

For more data insert No. 21 on postcard.

Tube, Pipe Fittings

Simplify installation and reduce pipe line costs.

Three principal fittings in corrosion-resistant alloys are an insert flange, an aligning connector and a tube and pipe union. The insert flange consists of a corrosion-resistant serrated insert in a carbon steel flange, requiring only an expanding tool and a plain wrench for working with it. It is made for standard tubing ODs and gages, and nominal pipe sizes from ½ to 6 in. The aligning connector is used in connecting standard heavy-wall pipe to light-wall pipe. Tubing OD and pipe sizes are ½ to 4 in. The tube and pipe union combines the best features of the screwed pipe union and the sanitary tube union, and is said to remove leakage problems often encountered with corrosion - resistant ground joints. *Horace T. Potts Co.*

For more data insert No. 22 on postcard.

Rubber-Fabric Belt

Will not slip, permits split-second timing, has up to 16,000 fpm speeds.

Known as the Gilmer Timing Belt, a rubber and fabric belt with teeth fulfills the need for a power drive that will not slip and permits split-second precision timing. It attains speeds up to 16,000 fpm and is said to operate more quietly than precision gears running in an oil bath. The new belt does not stretch and operates on fixed centers without takeup adjustments. Since it needs no initial tension it has high efficiency with low bearing pres-

use postcard below

FIRST CLASS
PERMIT No. 36
(Sec. 34.9 P.L.&R.)
New York, N. Y.

BUSINESS REPLY CARD
No postage necessary if mailed in the United States

POSTAGE WILL BE PAID BY

THE IRON AGE
100 E. 42nd St.
NEW YORK 17, N. Y.

production ideas

Continued

sure. The belt requires no lubrication, but oil will not harm it. It is compact and speed ratios up to 30:1 are possible with it. The belt's flexibility permits pulley diameters as small as ½ in. at 10,000 rpm even with a heavy load. *U. S. Rubber Co.*

For more data insert No. 23 on postcard.

Tungsten Electrode

Reduces inert-arc welding cost.

The new Hi-Thoria tungsten electrodes produce a stable arc over a wider range of currents and will resist contamination by weld metal. Hi-Thoria tungsten is said to have strength comparable to standard pure tungsten. It runs cooler than standard tungsten and does not become molten. The end of the electrode remains square and intact and consumption is reduced. The new electrode is manufactured in 3 to 24 in. lengths and from 0.040 to ¼ in. diam. Major applications of the new tungsten will be for inert-arc welding with dc, straight polarity using either argon or helium gas. This type is used to weld mild steel, stainless steel, copper and alloys. *General Electric Co.*

For more data insert No. 24 on postcard.

No-Rust Compound

Protects metal surfaces against corrosion, indoors or outdoors.

Gulf No-Rust No. 6 is a rust preventive of the thin film type and will provide approximate surface coverage of 390 sq ft per gal. It has no tendency to settle or separate in storage, and due to excellent adhesion the coating when once applied and dried will not crack, chip, scale or distintegrate at temperatures down to 0°F, nor will it flow at temperatures as high as 190°F. The rust preventive is said to deposit a coating not exceeding 0.008 in. thick by dipping at a temperature of 70°F and will dry sufficiently within 4 hr to permit handling without removal of the coating. No-Rust No. 6 is suitable for application by brushing, spraying, or dipping, and is removed with stoddard solvent, kerosene, or similar petroleum solvents. *Gulf Oil Co.*

For more data insert No. 25 on postcard.

Bundling Chain

Bundles materials for storage.

The Acco bundling chain with automatic lock permits bundles to be stored indefinitely and held securely eliminating the use of pins, pear shaped links, and wires. The drop forged automatic bundle lock is available as a separate unit or as part of a chain assembly. The lock is manufactured for 17/32, 9/16, ⅝ and 21/32-in. chain. Assemblies can be furnished with wrought iron, low carbon, high test or alloy chain. *American Chain Div., American Chain & Cable Co., Inc.*

For more data insert No. 26 on postcard.

Emergency Light

For Civilian Defense emergencies, provides 80 hr continuous light.

For use in defense plants and in emergencies, a portable light is powered by a heavy duty rechargeable long life battery. A special 2-filament bulb furnishes work or rescue light for 80 continuous hours on one filament—or a higher power flood-light for 20 consecutive hours on the second filament. A thumb-operated 3-way toggle switch controls both filaments. Beam can be tilted instantly by fingertip pressure. *Carpenter Mfg. Co.*

For more data insert No. 27 on postcard.

Heavy Duty Casters

Said to move maximum loads with a minimum of vibration and shock.

To meet explosives plant safety requirements, new heavy duty casters for pneumatic industrial wheels are spark-proof and generate minimum friction heat due to rollability guaranteed to be 20 pct greater than that of ordinary industrial casters. Cased bearings eliminate the race wear common with ordinary ball bearings. As a mounting for 10-in. diam pneumatic wheels, the caster has designed load rating of 1200 lb. *Aerol Co., Inc.*

For more data insert No. 28 on postcard.

Control Valves

Manufactured to operate 1 to 4 single or double-acting cylinders.

Hydreco V16 Series control valves conserve mounting space by incorporating check valves within

use postcard below

Name .....
Title .....
Company .....
Co. Address .....
.....
THE IRON AGE, New York 17

☐ Fill in above the number of the item on which you need further data.

Name .....
Title .....
Company .....
Co. Address .....
.....
THE IRON AGE, New York 17

☐ Fill in above the number of the item on which you need further data.

Name .....
Title .....
Company .....
Co. Address .....
.....
THE IRON AGE, New York 17

☐ Fill in above the number of the item on which you need further data.

Name .....
Title .....
Company .....
Co. Address .....
.....
THE IRON AGE, New York 17

☐ Fill in above the number of the item on which you need further data.

WESTINGHOUSE

RECTIFIER WELDERS *Save* ON ANY JOB

Westinghouse D-C Rectifier Welders handle applications of *all* sizes better, faster and cheaper than m. g. sets. Field reports prove the unit is ready for tomorrow's even bigger welding jobs.

Take the 2,000,000-gallon water tank created by Pittsburgh-Des Moines Steel for the city of Niagara Falls, New York. Welding of the monster prefabricated sections was done by a unique battery of d-c rectifier units supplied by one large diesel-driven generator. This arrangement replaced separate engine-driven welding generators formerly used.

With the rectifier welders, as compared to those formerly used, fuel costs alone were slashed 70% . . . maintenance was reduced 85% . . . equipment weight was cut 15,000 pounds. Initial cost of these rectifier welders and power supply generator was 50% less than that of rotating d-c welders of equivalent capacity.

You may never have to weld a 2,000,000-gallon tank, but you can always save with Westinghouse D-C Rectifier Welders on all your applications—large or small. Call your nearest Westinghouse distributor or write Westinghouse Electric Corporation, Dept. DC-32, Welding Division, Buffalo, N. Y.

J-21609

YOU CAN BE SURE.. IF IT'S

Westinghouse

Rectifier Welders

UNIVERSITY OF MICHIGAN LIBRARIES

production ideas

Continued

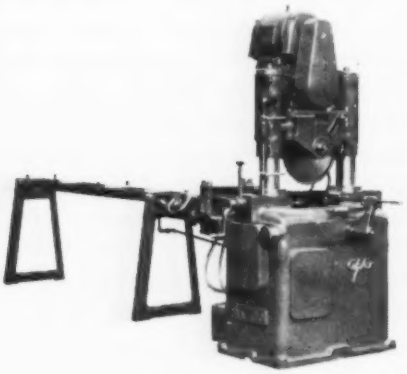
their respective control plungers and using the hollow plunger center for oil passage. Relief valves designed into the valve body further reduce space requirements for this type of equipment. These valves can be used in the limited space for mounting hydraulic controls found on many types of materials handling equipment. *Hydraulic Equipment Co.*

For more data insert No. 29 on postcard, p. 37.

Cold Sawing Machine

Full automatic, hydraulic high speed; capacity to 5-in. rounds.

This cold saw has the features of the Models 660 and 1000 (see IRON AGE, Aug. 17, 1950, p. 40) plus the new control for full automatic operation. Hydraulic feed



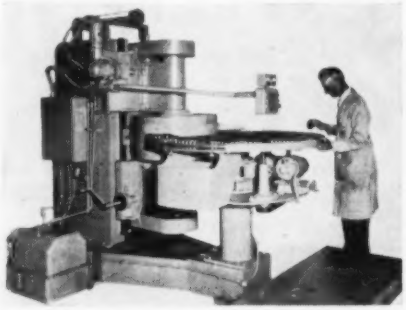
mechanism feeds the material accurately in lengths of 0 to 16 in. for continuous production cutting. The machine can be converted for semi-automatic operation with a single hand lever control. All controls are interlocked to avoid operational errors. A hydraulic vise clamps the material on both sides of the saw blade and centers the stock directly under the center of the blade, providing a short, efficient and burr-free cut. *Klingelhofer Machine Tool Co.*

For more data insert No. 30 on postcard, p. 37.

Spring Grinder

Double vertical spindle disk grinder has semi-automatic cycling.

Grinding coil springs more quickly and economically, with a corresponding increase in accuracy and all-round quality is claimed for a new disk grinder. Advantages listed are extra flexibility, time saving, increased wheel life, conservation of floor space, and overhead economies. The machine grinds springs from ½ to 6 in. long, from ¼ to 4 in. diam. and from 0.0625 to 0.500 in. wire diam. The abrasives are especially constructed to grind a variety of



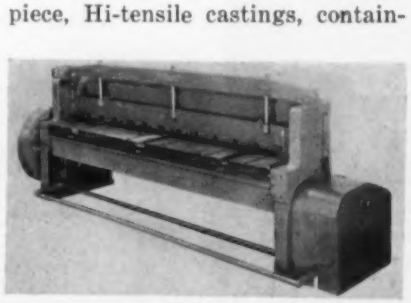
spring types as well as materials such as oil tempered steel, music wire, bronze wire, etc. This eliminates downtime for wheel changeover. The springs pass across the center of 30-in. diam abrasives with no center holes, and are finished during each cycle. The new method tends, also, to obviate the need for secondary operations such as reaming or chamfering, squaring and scale testing. *Charles H. Besly & Co.*

For more data insert No. 31 on postcard, p. 37.

Power Squaring Shears

12 gage shears in 52 in., 6, 8 and 10 ft cutting lengths.

To insure top performance at the 12 gage rating, Wysong tests each shear on 10 gage sheets. In the test, cutting is full length at 60 strokes per min. Bed, end-frames, holdown and knife-bar are one-piece, Hi-tensile castings, containing 30 pct steel. Standard equipment includes motor with controls and electrical equipment; ball-bearing, precision back-gage adjustable to 1/128th in.; 2 front gage brackets and front gage; side and bevel gages; stainless steel scale embedded in table to aid in positioning sheets; slatted metal finger guard; non-repeat unit and 4-edge blades. The 52-in. shear has front operation for the precision back gage, and an automatic stroke counter. *Wysong & Miles Co.*

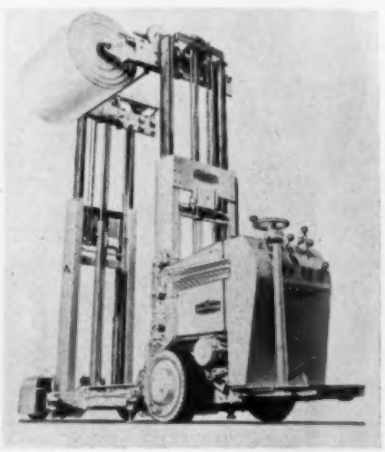


For more data insert No. 32 on postcard, p. 37.

Roll Handling Truck

Built-in signal system indicates truck position in narrow aisles.

This truck is required to handle 1500 lb rolls, 32 in. diam x 42 in. long in and out of five high storage racks along both sides of 54-in. wide aisles. A signal system built into the truck lets the operator know the aisle and his position in the aisle as the truck moves along. While traveling in aisles, the truck is steered by guide rollers running



against the side of the aisle tracks. In other places the truck is steered manually. Electric storage battery power moves the truck and runs the hydraulic pump. Once the truck reaches its position in the aisle a few controls are set and the carriage automatically starts to raise to the proper level, move sideways, pick up or deposit a roll, return to the center position where the carriage lowers to a normal position. *Lewis-Shepard Products, Inc.*

For more data insert No. 33 on postcard, p. 37.

Cutter Vise

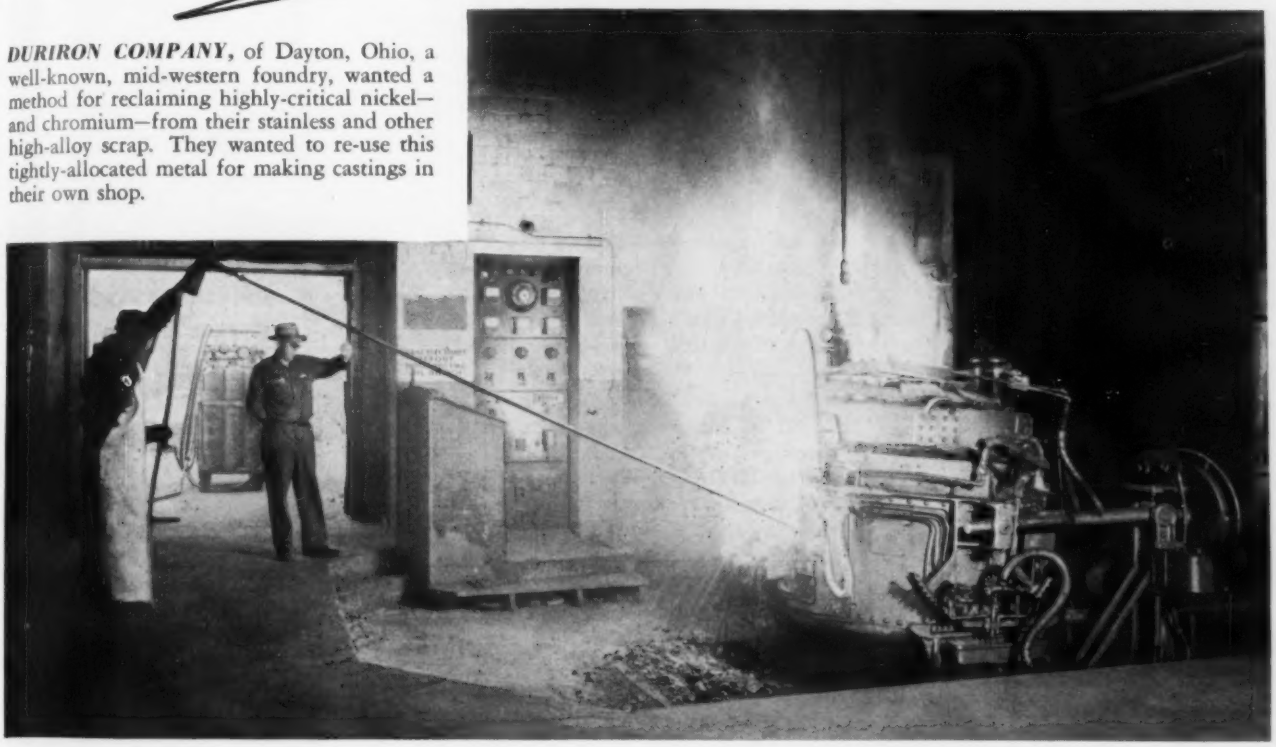
Holds cutter firmly—indexes quickly.

A new cutter vise holds inserted-blade milling cutters firmly in a convenient position while blades are being reset. With the cutter rigidly clamped, wedges can be driven and screws tightened more rapidly. Power-operated jaws of the vise are

Turn to Page 108

NEW Airco Oxygen Process reclaims nickel...chromium from stainless and high-alloy scrap

DURIRON COMPANY, of Dayton, Ohio, a well-known, mid-western foundry, wanted a method for reclaiming highly-critical nickel—and chromium—from their stainless and other high-alloy scrap. They wanted to re-use this tightly-allocated metal for making castings in their own shop.



W. T. Bryan, Duriron Co., and ***H. C. Linde,*** Airco Technical Sales Representative, working together, used oxygen refining as a means of removing carbon from the alloy steel bath. On the basis of experience, it was found that the carbon removal was accomplished without excessive oxidation of chromium from the high alloy scrap charge. Equally important, all of the nickel charged was recovered. This permitted the foundry to reclaim all scrap.

The Duriron Company was highly pleased with these results, and have adapted this process as standard practice ... and, now produce low-carbon, high-alloy castings from material that otherwise would be useless to them.

For further information about this modern method for reclaiming high-priority nickel — and chromium — from your scrap, call or write your nearby Airco office for Technical Sales assistance.

AIR REDUCTION

AIR REDUCTION SALES COMPANY • AIR REDUCTION MAGNOLIA COMPANY
AIR REDUCTION PACIFIC COMPANY
REPRESENTED INTERNATIONALLY BY AIRCO COMPANY INTERNATIONAL
Divisions of Air Reduction Company, Incorporated
Offices in Principal Cities

UNIVERSITY OF MICHIGAN LIBRARIES

IRON AGE *introduces*

W. A. Roberts, elected president of ALLIS-CHALMERS MFG. CO., New York. **W. C. Johnson,** elected executive vice-president; **Fred Mackey,** vice-president in charge of manufacturing, general machinery division.

L. A. Dixon, elected a director of the ROCKWELL MFG. CO., Pittsburgh.

Ernest S. Theiss, appointed chief engineer of the DAVEY COMPRESSOR CO., Kent, Ohio.

Victor P. Johnson, joined the sales staff of BIGELOW-LIPTAK CORP., New York.

Herbert B. Nechemias, appointed manager of the industrial sales department at WAGNER ELECTRIC CORP., St. Louis, succeeding **J. S. Smith** who was appointed director of purchasing.

Barry Herbert Fisher, appointed sales representative, Baltimore, for the U. S. GRAPHITE CO., of Saginaw, Mich.

Earl M. Landis, appointed to the newly created post of training director for HARRIS-SEYBOLD CO., Cleveland.

Tomlinson Fort, elected a vice-president of WESTINGHOUSE ELECTRIC CORP., Pittsburgh. Others elected: **L. W. McLeod** and **L. E. Lynde.**

Robert G. Boulter, appointed manager of sales planning and analysis for the Laminated & Insulating Products Div., Coshocton, Ohio, of the GENERAL ELECTRIC CO.

Walter G. Mason, appointed as director of personnel for the ARTHUR G. McKEE & CO., Cleveland.

E. H. Nichols, appointed district sales manager for TRUSCON STEEL CO., Birmingham.

Charles E. Leasure, named works accountant of the Butler Div., of ARMCO STEEL CORP., Middletown, Ohio.

Earl Erich, promoted to product director for linings and coatings and **George Kanelis** recently joined the engineering department of ATLAS MINERAL PRODUCTS CO., Mertztown, Pa.

W. A. Edwards, appointed district manager of the TRUMBULL ELECTRIC MFG. CO. With headquarters at Norwood, Ohio, Mr. Edwards will be in charge of the East Central district.

A. R. Wise, appointed assistant general manager of the CLEVELAND TAPPING MACHINE CO., Cleveland. Mr. Wise continues as vice-president and sales manager of the company.

Maurice J. Erisman, named assistant chief engineer, Pershing Road Chicago plant of LINK-BELT CO. **Homer J. Foye** replaces Mr. Erisman at the Los Angeles plant as chief engineer.

Meritt Myers, named to the newly created post, director of production planning of the AMERICAN STOVE CO., St. Louis.

H. F. Detrick, appointed general manager of the A. O. SMITH CORP., with offices in San Francisco.

C. F. Cooper, appointed acting district sales manager for northern California for the KAISER STEEL CORP., with headquarters in Oakland.

Turn to page 56

C. A. KRAL, appointed a vice-president in the engineering and construction division at Concepcion, Chile, for Koppers Co., Inc.

R. W. WALKER, named executive vice-president and a director of Brunswick Ordnance Corp., New Brunswick, N. J., a wholly owned Mack Trucks, Inc., subsidiary.

DAVID S. GIBSON, appointed assistant to the vice-president, purchases and traffic, of Worthington Pump and Machinery Corp., Harrison, N. J.

IRON AGE

salutes

Clifford F. Hood

BEING executive vice-president-operations of U. S. Steel Co. is a challenge that Cliff Hood is meeting in customary fashion—head on.

What's more he likes it. He doesn't even have to say it. The zestful way he works at squeezing one more ingot from the production pot is enough.

Thirty-two years in the steel business, virtually all of it in a supervisory or executive capacity, has taught him the importance of getting along with other people. He not only believes that a man should be praised for a job well done—he does it. And he's not shy about spreading the word around either. That's another reason why people like to work for him.

He puts all he has into whatever he does. His excellent bond drive at Carnegie-Illinois is being used by the Treasury Dept. as a model in other plants.

Mr. Hood, born on a farm near Monmouth, Ill., Feb. 8, 1894, might have been a farmer except for happenstance. When he was a youth, an electrical engineer moved into town and aroused his interest in this field. As a result, he graduated from the University of Illinois with a degree in electrical engineering.

He served as assistant cable sales manager for Packard Electric Co. before joining the electric cable department of American Steel & Wire Co. in 1917. After service in World War I he moved up the ladder steadily, becoming president in 1938. He was made president of Carnegie-Illinois in 1950.

When he can find the time, which is not often enough to suit him, he likes to play a strictly sociable round of golf. If he manages to hold his score to the low 90s he goes home happy.

UNIVERSITY OF MICHIGAN LIBRARIES

WALTER J. DAILY, appointed vice-president of the vacuum cleaner division of Lewyt Corp., Brooklyn, N. Y.

HOWARD G. GOLEM, appointed as director of procurement for Consolidated Vultee Aircraft Corp., San Diego, Calif.

A. H. LEWIS, JR., appointed manager of the Syracuse, N. Y., branch of Crucible Steel Company of America.

ORREN S. LESLIE, assumed the managership of the Beloit, Wis., works of Fairbanks, Morse & Co.

IRON AGE *introduces*

Continued

H. N. May, appointed chief of material for the San Diego division of CONSOLIDATED VULTEE AIRCRAFT CORP.

Jerome L. Strauss, appointed as vice-president of the contract manufacturing division and **Irving J. Bottner** as treasurer of LEWYT CORP., Brooklyn, N. Y.

John H. Clough, elected a director of the GRISCOM-RUSSELL CO., New York.

Harry G. Call, named a vice-president; **I. O. Goodnight,** treasurer and **G. A. Kessel,** assistant comptroller of the ELECTRIC AUTO-LITE CO., Toledo.

Robert I. Baxter, appointed manager of sales for the PENN STEEL CASTINGS CO., New York.

S. W. Hickey, appointed assistant manager of the railroad products department of FAIRBANKS, MORSE & CO., Chicago.

Sheldon Dale, promoted to the newly created position of director of research and development for CORY CORP., Chicago.

Herbert L. Schultz, appointed plant manager of MID-WEST ABRASIVE CO., Owosso, Mich.

Robert W. Lea, joined OLIN INDUSTRIES, INC., East Alton, Ill. Mr. Lea was formerly the president of the Johns-Manville Corp.

H. B. West, appointed sales engineer, Syracuse district, for CRUCIBLE STEEL COMPANY OF AMERICA.

William M. O'Donnell, appointed to the executive staff of AMERICAN METALLURGICAL PRODUCTS CO., Pittsburgh. Mr. O'Donnell will be engaged in sales and metallurgical development.

W. F. Hurlburt, Sr., elected chairman of the board of directors of AUTOMATIC SWITCH CO., Orange, N. J. Other officers elected: **W. F. Hurlburt, Jr.,** president; **H. V. Darrin,** vice-president and secretary; **David M. Darrin,** vice-president and treasurer.

Patrick J. Patton, appointed Milwaukee manager for the commercial sales division of the DE LAVAL STEAM TURBINE CO.

Harry Brandvik, appointed representative for KENNAMETAL, INC., at their new district office in Minneapolis. **William J. Collins,** appointed as representative in the New England district, and **Frank Price** as service engineer in the Middle Atlantic district.

T. W. Haines, named district manager for Philadelphia and eastern Pennsylvania of the MORSE TWIST DRILL & MACHINE CO. Mr. Haines has been replaced in New York by **R. W. Kuhn** and **R. E. Bennett.**

E. A. Williams, Jr., joined the operating department of the NORTH AMERICAN REFRACTORIES CO., Philadelphia. Mr. Williams was formerly vice-president in charge of production of the Climax Fire Brick Co.

Clyde E. Albro, appointed sales development supervisor for mica products for GENERAL ELECTRIC CO., Schenectady.

OBITUARIES

Paul Pauren Ildings, 50, director of General Motors Corp. for Portugal, died February 13, 1951.

John Hughes, 85, formerly assistant to the president of U. S. Steel Corp., New York, died recently.

Paul Prescott, 33, structural engineer with Truscon Steel Co., Boston, died recently.

W. L. Iliff, 60, manager of Eastern sales, Hyatt Bearings Div., General Motors Corp., Harrison, N. J., died recently. Mr. Iliff started with the company in 1914.

Francis A. Troendle, 61, treasurer and assistant secretary of The Midvale Co., Philadelphia, died suddenly.

Henry Plackett, 63, superintendent of the sheet rolling mill, Park Works of Crucible Steel Co., since 1931, died at Pittsburgh recently.

Fred H. Loftus, 56, president of Loftus Engineering Corp., Pittsburgh, died recently.

Sherwood A. Moore, president of Sherwood Moore Iron Works, Birmingham, died recently at St. Petersburg, Fla.

NUTONE and REVERE "RING the BELL"!
NuTone "SYMPHONIC" EIGHT-NOTE WESTMINSTER DOOR CHIME WALNUT FINISH COVER AND BRASS CHIME TUBES.

NUTONE'S Symphonic Door Chime, made by NuTone Incorporated, Cincinnati 27, Ohio. The company has recently added to its line Westminster Chime and Strike Clocks.

EASY polishing on centerless polishing machines is an important feature of Revere Brass Tubes.

POLISHED tubes are dipped in clear synthetic finish and up-ended to drain before baking.

• In the early days of NuTone, when the company was laying the foundation for a business that became the world's largest producer of door chimes, an important decision had to be made. A metal had to be selected for the chimes, one that would produce a soft, pleasant, resonant tone; a metal that was hard and durable; that would polish easily and retain a gleaming, luxurious surface for many years.

NuTone experimented with different metals, tested various products. Finally a Revere Brass Tube was selected, which was not surprising, because Revere itself had conducted extensive laboratory investigations into the factors responsible for pleasing tone. For the past 14 years, throughout NuTone's history, Revere Brass Tube has been used in increasing quantities. Revere has also collaborated in economy as well as quality, assisting on production problems, in the specification of multiple lengths to lessen scrap, and so on. This is a story of cooperation between two industries, and between a large company and one that used to be small, but is now the largest in its field . . . Revere is proud of the results of this long and happy association.

REVERE 150th YEAR OF SERVICE TO AMERICA

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

• • •

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.— Sales Offices in Principal Cities, Distributors Everywhere

SEE "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

UNIVERSITY OF MICHIGAN LIBRARIES

on the assembly line

automotive news and opinions

Race develops between civilian and defense tooling . . . Civilian programs hang on . . . See auto taxes too high.

by Walter G. Patton

No Engine Cancellations—Closest heat in the race between civilian and defense production is in special machine tools. Motor car producers are still going ahead with their plans for new V-8 high compression engines. There have been no cancellations and will be no breaks in the projected engine programs unless defense takes over. There is real danger this may happen but it hasn't happened yet.

Men and Materials—Right now Detroit machine tool builders face two very tough shortages: materials and manpower. Steel is very tight—and getting tighter. A shortage of steel bars is slowing down machine tool production. Some machine tool builders believe pooled orders for steel, giving preference to machine tool builders, will be absolutely essential if civilian machine tool decks are to be cleared for defense work.

High Auto Taxes—Tax target for today is certainly the automobile. Industry statisticians estimate that a $2000 car delivered at Detroit during 1949 carried a measurable tax burden of $475.75. About 24¢ out of every automotive dollar goes for taxes. During 1949, special motor vehicle taxes collected from the public are estimated at $3845 million.

It is not to be wondered that the industry last week protested the government's plan for a 20 pct excise tax on new automobiles. As AMA figures it, the current 7 pct excise tax is too high and many other commodities are tax free. The industry is also protesting that the rate of increase on automobiles proposed by the Treasury is higher than the tax burden suggested for any other commodity, accounting for 40 pct of the new program.

Wanted—Clear Picture—Here is a fact not generally considered: If war work takes over suddenly, cancellations of civilian machine tool orders will make World War II cancellations look like peanuts. The present emergency has found machine tool builders loaded. Eight major car engine and body tooling jobs are now in process—more than at any time in the industry's history.

This work is going ahead—for the present. Some observers feel the critical materials situation plus the growing defense requirements will eventually upset existing plans. This question is being asked: Is it fair to ask auto makers to give up tooling in which they have already invested millions until a clearer picture comes out of Washington?

Reckoning the Chances—As matters now stand, the prospects for new engine programs look like this: The Ford 6 and Lincoln seem to have a good chance to reach completion. The Ford 8 and Mercury may get squeezed. DeSoto seems to have a good chance but there is some doubt about Dodge. The new Buick engine is doubtful—but work is proceeding.

Beating the Deadline?—While there has been much conjecture about 1952 car models, these facts should be kept in mind: (1) Each car manufacturer is going ahead with his plans. There have been no major cancellations of die work. (2) The changes involved in 1952 models are the most extensive in the history of the industry with the exception of the original postwar models.

The outlook is for increased activity to complete present die work. This work should be out of the foundries next month or April at the latest. The dies then go on to tool and die shops. This work will undoubtedly go forward unless it is stopped by defense. Whether the finished dies will be used or mothballed for the duration is anybody's guess.

Foundries Tighten Belts—Detroit foundries have been hard hit

assembly line

by the critical alloy situation. Automobile dies have always contained substantial amounts of nickel, chromium, molybdenum and other alloys. These alloy additions assure adequate hardness and other desirable properties in large sections. Some dies are now being made without the usual alloy content.

Foundries are also having pig iron supply difficulties. Others report silicon is very tight. One result: New automotive dies may be on the soft side. Foundry sources hasten to add, however, they will work quite satisfactorily.

Ford Steelmaking — Progress made in the Ford steel operation at the Rouge has been tremendous. From 1940 to 1945, Ford blast furnaces averaged 41,000 tons annually. Output in 1950 was more than a million tons, a gain of 127 pct. Ford openhearth ingot production averaged about 710,000 during 1940-45. In 1950, output reached 1,200,000 tons, a gain of more than 73 pct.

Guesswork in Capacity—There is always a certain amount of guesswork in capacity figures. Rated production capacity of the Ford Motor Co. is about 6300 cars a day. Still, Ford was able to boost its peak output to nearly 9000 units a day during 1950.

Testing for Leaks — The day may come when water tests are extensively used on the assembly line. De Soto uses such a test and reports excellent results. The water is forced on the car under high pressure. The test not only discloses leaks but quickly indicates variations in dies and assemblies.

Fisher Body has announced a 4 minute sealing test is being employed. The test is intended to duplicate road conditions encountered at high speed. In the test, 30 high pressure jets dash 500 gal of water at the body from all directions. Fisher uses a comparable water test at its assembly plants to check the sealing of each body coming off the assembly line.

Checking for Roadability—Other tests used currently by Fisher Body include: (1) a "shake rig" test in which the front end of the car is held rigid while the rear end is oscillated to simulate the twisting motion encountered on the road, (2) measuring maximum deflection over the length of the car with maximum passenger loads in the front and rear seats, (3) a "dust test" in which body sealing is checked by blowing powdered chalk dust into a specially constructed chamber, (4) checking road noise by placing front or rear wheels between revolving rollers that are interchangeable to simulate different road surfaces. Offset cams are used to reproduce surfaces ranging from rough cobblestones to superhighways.

A Lot of Sand—Materials requirements for production foundries are staggering. To produce the various types of molds for aluminum castings at Fabricast Div. of General Motors a total of 40,000 tons of sand are used per year. This includes 12,000 tons of bank sand, 10,000 tons of silica sand, and 18,000 tons of lake sand.

Detroit's War Work—Four more major defense contracts have recently been announced by the automobile industry. (1) Hudson will build Wright R3350 reciprocating aircraft engines. (2) K-F has been awarded its third aircraft order—to build Wright R-1300 aircraft engines. (These will be built at the K-F engine division in Detroit.) (3) Buick has been announced as a prime contractor to produce British-designed J-65 Sapphire jet engines for American fighter planes. Amount of the contract is $25 million. (During World War II Buick built Pratt and Whitney bomber engines.) (4) Chrysler Div. of Chrysler Corp. will build V-12 air-cooled tank engines of Continental design at New Orleans.

Must Be Easy Reading—General Motors is continuing the successful operation of its Information Rack Service. During the past 25 months, GM has distributed 21 million copies of 148 booklets to employees. Social and economic material accounted for 36 pct of the total; home and family, 18 pct; safety and health, 16 pct; inspirational, 13 pct.

THE BULL OF THE WOODS — By J. R. Williams

ARMY REGULATIONS? GOOD NIGHT! WHUT ARE YOU READIN' A THING LIKE THAT FER?
JUST IN CASE, MY BOY, JUST IN CASE... SO I WON'T BE NO BUCK PRIVATE IN CASE... YOU NEVER HEARD OF A MAJOR ER COLONEL COMIN' BACK AN' RUNNIN' A DRILL PRESS, DID YOU? WELL, THEY'LL NEED TRAINED MEN AN' I'LL BE READY!
THEY NEED TRAINED MEN HERE, BUT I'VE NEVER SEEN HIM LOOK AT ANY-THING BUT A CALENDAR SINCE HE'S BEEN HERE!
HE'S RIGHT, THOUGH--HE'S GOT A BETTER CHANCE OF BEIN' BIG HERE IF HE GITS BIG IN A WAR, ER GOLF, ER-- YOU HAVE TO MAKE 'EM NO-TICE YOU IN SOMETHIN' ELSE!
REDRAWN BY REQUEST
THE INDIRECT ROUTE
J.R. WILLIAMS 2-23
T. M. REG. U. S. PAT. OFF.
COPR. 1951 BY NEA SERVICE, INC.

UNIVERSITY OF MICHIGAN LIBRARIES

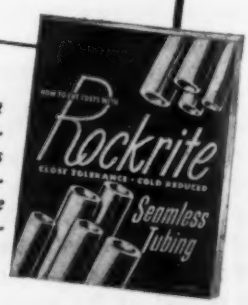
Double Output...

...of these parts by machining them from ROCKRITE® TUBING

TWO PARTS in the same time it takes to produce one! That's possible when you machine them from Rockrite instead of standard mechanical tubing. And you save up to 50% in cost. • The reasons? Rockrite Tubing is sized by a distinctively different process to much closer tolerances than are practicable by any other method. That means there's less metal to remove, and cutting speeds can be higher. Rockrite Tubing provides better work-surface finishes. Closer tolerances often eliminate the need to machine the inside or outside of the part. • What's more, tools last longer between grinds. Stations on automatics can often be released for additional operations. Extra long pieces are available, so there is less down-time for magazine stocking.

ROCKRITE® TUBING

You'll want to read this booklet because it tells in detail how close-tolerance Rockrite Tubing, with its greater accuracy, helps step up production at less overall cost. Write for your copy of this 16-page, illustrated bulletin today.



TUBE REDUCING CORPORATION · WALLINGTON, NEW JERSEY

west coast progress report

digest of far west industrial activity

by R.T.Reinhardt

New Steel Plants—Latest development in the proposed steel plant for "someplace in central California" is the filing of a certificate of necessity for $24 million by the Yolo Steel & Metal Co.

The backers claim to have a large deposit of magnetite ore running more than 50 pct Fe in central California. The entire proposal involves a blast furnace, openhearth with 1 million ton per year capacity and rolling mills, to cost approximately $264 million.

Seattle Mill — In the Pacific Northwest the Seidelhuber Steel Rolling Mill Corp. has been formed with Frank Seidelhuber, Jr., president; Frank Seidelhuber, Sr., and William S. Leckendy, vice-presidents; Wayne Booth, secretary; Roy C. Erickson, treasurer, and Henry R. Seidelhuber and Frank L. Cassidy, directors.

Company officials say ground will be broken within 4 months and the mill will employ about 150 men on a three shift basis within 18 months. The mill will produce strip.

Cost Advantage—President Seidelhuber states, "There is no other mill within 1000 miles, which gives us a $30 a ton advantage on freight alone, and then too, our scrap price is lower than back East." He adds that "with a little expansion we could use 1000 tons of sheet a month and the mill will produce 3000 tons which means we will have 2000 tons to sell to small manufacturers who are already expressing interest."

At present he buys ingots locally for $106 a ton and then pays to have the ingots rolled into sheets at a total cost of approximately 10¢ a pound.

The parent company, Seidelhuber Iron & Bronze Co., last week reported that it has a 3-year contract with the Army Ordnance Dept. for steel landing mats, 5-gallon gas cans and practice bombs.

K-F Closes at Long Beach—Production of automobiles for the Kaiser-Frazer Corp. at Long Beach was discontinued last Saturday at midnight. The company had been assembling 25 cars a day for approximately 2 years in the former Douglas Aircraft Corp. plant, and the facilities will be reconverted to aircraft production.

This assembly unit was one of several planned by the K-F Corp. where output would be somewhere between 25 and 100 units per day. A similar plant has been in operation in Portland for the past 6 months.

Few Tears Shed — Announcement by Kaiser Aluminum & Chemical Corp. that New Orleans, La., has been selected as the site for construction of its new 100,000 ton per year aluminum reduction plant came as no surprise to westerners. As reluctant as they were to see this industry and heavy payrolls go to another area, power conscious industrialists of the Northwest privately are relieved.

There has long been opposition to further expansion of aluminum reduction facilities in the Pacific Northwest because of the high rate of electrical consumption per manhour.

Low Cost Power—Low rate for electrical power, the magnet drawing aluminum reduction facilities to the Pacific Northwest, may be equalled in the New Orleans project. Kaiser Aluminum & Chemical Corp. expects the cost of electricity generated with natural gas from the Gulf areas to compete favorably with the low rates in existence from the Bonneville Power Administration.

Scrap Headaches — Although western scrap dealers are almost completely satisfied with recent price regulations there are some objections to limits on preparation costs, and some off-grading has been reported.

Although there has been no real evidence of hoarding by dealers, scrap is tight particularly in the Northwest. Pacific Car & Foundry at Renton which has a large defense order is asking for more scrap than it is getting.

UNIVERSITY OF MICHIGAN LIBRARIES

REDUCE ROLL NECK MAINTENANCE COSTS

TO OBTAIN economical and trouble-free performance of oil film roll neck bearings, use *Texaco Regal Oils*. These heavy-duty turbine-quality oils keep circulating systems clean, thus assuring a constant flow of cool, clean lubricant to the bearings. Bearings last longer . . . efficiency and production go up . . . maintenance costs go down.

Texaco Regal Oils are especially resistant to oxidation, emulsification and sludging, and are designed to carry heavy loads—even under high operating temperatures. You'll agree with operators everywhere that *Texaco Regal Oils* assure better performance . . . better results.

For efficiency and economy in pinion stands and reduction drives, protect heavy-duty enclosed gears with *Texaco Meropa Lubricants*. Gear and bearing life is greatly prolonged with these "extreme pressure" and foam-resistant lubricants.

Let Texaco's cost-saving lubricants work for you. A Texaco Lubrication Engineer will gladly help you select the proper ones for your operation. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Regal Oils

(HEAVY CIRCULATING OILS)

TUNE IN . . . TEXACO presents MILTON BERLE on television every Tuesday night. METROPOLITAN OPERA radio broadcasts every Saturday afternoon.

the federal view

this week in washington

by Eugene J. Hardy

More Cutbacks Coming—Relaxation of metal orders here and there actually represents efforts to equalize the impact of limitations, thus affording a little relief to industry. Present tight supply situation is due to grow worse before getting better. Steel is due to be brought under cutback restrictions.

NPA opinion is divided as to whether the proposed industry-by-industry cutback is the right approach. But there is agreement that the use of steel for the civilian economy must be reduced by at least 20 pct during the second quarter. The relaxing of some restrictions on copper, scheduled for this week, will bring only spotty relief. Another 5 pct copper cutback to the present 20 pct is seen as certain for the second quarter. No changes in aluminum limitations are currently planned for the second quarter although the supply is growing tighter.

Stockpile Storage—Distribution and storage of materials in the strategic stockpile is now being made on the basis of relative industry consumption — pin-pointed by cities, instead of broad areas. In other words, manganese and tin will be stored near steel-producing centers, rubber close by the major tire-producing plants, etc.

The new plan is based on a Munitions Board review of industrial consumption of stockpile materials, which has been substantially completed. As a result, the Board points out millions of ton miles of wartime transportation requirements, will, in effect, be "stockpiled." Materials will be stored closer to possible claimants minimizing cross-hauls and back-hauls.

Metal Buying Centers—The Defense Minerals Administration is studying the feasibility of reviving the metals procurement depot system set up by the Metals Reserve Corp. during World War II. Reason is that increased domestic metal production is foreseen in the flood of applications being received by DMA for government aid in expanding and enlarging mining operations.

Applications under process run the gamut from opening new mines to expansion of existing facilities and reopening of marginal mines. Metal received through government contracts would be channeled mostly back to industry (defense projects). Production under DMA help will not be felt for at least 18 months.

Tighter A-T Penalties?—In the coming months the Federal Trade Commission will press its annual fight for more teeth in existing anti-trust laws. The House Interstate and Foreign Commerce Committee has already been told penalties are too light and that the commission leans more toward the $50,000 maximum (per count) proposed under a bill which died in the last Congress.

The FTC is also drafting a proposal which would amend the Clayton Act to provide the same type of enforcement provisions contained in the Wheeler-Lea Act —civil penalties up to $5,000 for violation of cease and desist orders after they become final.

On Deaf Ears—President Truman's demand for $16 billion in new taxes is falling upon deaf ears on Capitol Hill.

Current congressional sentiment indicates that the most the Treasury can expect to receive in the way of new revenue next year is about half this amount.

A Flat Refusal—Senate and House tax-writers first exercised their constitutional prerogatives on revenue matters last week when they flatly refused to go along with White House demands for "immediate" enactment of a $10 billion tax bill as a "first installment."

Committee thinking is that Mr. Truman will be lucky to get one bill providing for about $8 billion in new revenue instead of what are seen as bloated demands.

UNIVERSITY OF MICHIGAN LIBRARIES

INLAND DATA for STEEL USERS

INLAND STEEL CO.
38 S. Dearborn Street, Chicago 3, Illinois

Packaging your Steel sheets and strip

One way the steel user may be able to reduce the cost of steel delivered to his fabricating equipment, is by specifying the correct type of package the mill should provide. In the final analysis, his handling equipment, storage facilities, method of transportation from mill to plant and end-use of the steel will all have a bearing on the type and weight of package he needs. The following chart illustrates the most generally used types of packages for steel sheets and strip. We are always glad to recommend to the user, the most suitable type of package for the steels we ship.

Type of handling equipment in steel user's plant	The most generally used types of steel mill packages	
	for cut lengths	for coils
Overhead crane with SHEET LIFTER or COIL HOOK	sheets on lengthwise skids	cylinder method of loading coils; coil on skid, core horizontal
Overhead crane with CHAIN OR CABLE SLINGS	sheets on crosswise skids; sheets on lengthwise skids	cylinder method of loading coils; coil on skid, core horizontal
Overhead crane with ELECTRO-MAGNET	any type package as long as material is securely banded or tied	flat method of loading coils; coil on platform, core vertical
FORK TRUCK	sheets on crosswise skids	Ram truck or Fork truck used as ram: cylinder method of loading; coil on skid, core horizontal. Fork truck: coil on platform, core vertical

THE IRON AGE
FOUNDED 1855
FEATURE ARTICLES

REDESIGNED FREEZER DOOR USES LESS STEEL

By J. V. KIELB
Director of Development,
Seeger Refrigerator Co.,
St. Paul

A unique new home freezer door design cuts materials cost by permitting use of lighter gage steel. But it introduced knotty problems in drawing and porcelain enameling. These were solved by refinements in design and processing methods.

Several interesting problems were overcome in the design and manufacture of a new freezer door, resulting in lower cost. This lowering of product cost was not easy. The manufacturing methods of a good organization are such that the possible reduction in direct labor is often small. Therefore, in order to reduce product cost, sometimes the only outlet is to reduce the purchase part cost, such as by the elimination of parts or through reducing gage thickness of materials.

Such a problem was involved in the design of a new door for home freezers. Before the decision was made on this door, many questions were asked, reviewed, and investigated, ranging between the most suitable door from a manufacturing standpoint to consumer preferences. Considered were a stainless steel door, a fabric surface with stainless steel trim, a painted steel door, and a white porcelain door. The stainless, although acceptable to the sales department, was too expensive. The fabric top surface was rejected because it would necessitate keeping a large inventory of different colors and patterns to meet the needs of all types of homes. The plain painted door did not test satisfactorily, showing a tendency to rust.

After much investigation, it was found that the porcelain finished surface, acid resistant, would be the most widely acceptable. Field reports have shown that this type of finished surface is one of the most practicable in home usage today. With this in mind, work was started to develop a complete new door design which would be completely different and also low in cost.

The result is an exterior door which is new in design and appearance. It is unique because it

UNIVERSITY OF MICHIGAN LIBRARIES

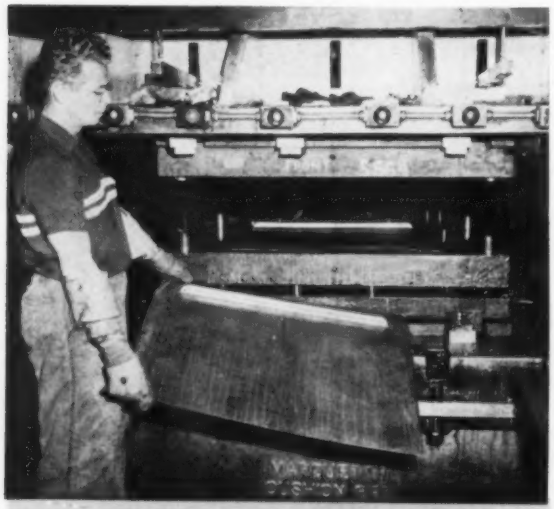


FIG. 1—The first drawing operation forms a splash guard on the door blank.

has no lock handle mechanism for lifting or closing, or sealing the door. This door is also reduced in thickness from 2¼ to 1¼ in., giving a better appearance while still maintaining low heat loss. The lifting action of the door was accomplished by placing an offset in the front flanges. Sealing was obtained through a reverse action in the hinge mechanism. This not only holds the door open, but as it closes, the spring mechanism reverses itself and keeps the door closed.

Since this was to be a white porcelain door finish, there arose countless problems due to the fancy design. It was found that cold-working stresses built up due to limited radii on the top and bottom corners of the splash board and the front offset handle embossment, which had to be eliminated before porcelain could be applied. This door developed into a rigid section particularly at the outside corners of the splash board, the height of the splash board, and the front offset handle embossment. If any cracking or rupture of the metal appeared in these radii, it generally resulted in hair lining, chippage or cracking of the porcelain.

Radii At Critical Points Increased

In the first draw operation, illustrated in Fig. 1, fracture of the metal appeared on the top left and right curve sections of the splash board, while the second draw operation generally resulted in a tearing out of these weak sections at the radii. At the start of the model, the openings at these points were welded before applying porcelain. During trial runs, the radii at these critical points were increased and blended together with other radii at these curve surfaces, so that maximum drawn qualities were obtained.

Fig. 1 shows the first draw operation, which is done from a developed size of enameled steel. In the design of this door, it was first thought that it would be necessary to use 18-gage steel in order to have a heavier door for sealing and preventing the door from warping. Also from the porcelain standpoint there would be less rejects on first coat operation against crackling, chippage or hair lining. From a punch press room standpoint, the heavier gage would have less rejects, and better drawing characteristics. However, it was found that the embossments resulting from the splash board, the offset handle, and the radii on the sides and front and back flanges added greatly to the

FIG. 2—Two operations are performed simultaneously on this press. The second draw is done in the background, and formation of the door offset flange in the foreground.

rigidity of the door. Therefore, it was possible to consider 20 and 22-gage materials, in high tensile steel. This design change resulted in a good cost reduction of raw material.

The material is roller leveled after the sheet is cut to size. In this operation, the splash board section is drawn on a 200-ton cushioned press. After this operation, the part is taken to a 350-ton Clearing press where the second operation is performed. In the background of Fig. 2 is the exterior door drawn to about 4 in. from the developed sheet. This developed sheet covers the side, the inside flanges, and trim of edges. On the right, in the foreground, the operation which forms the bumped flange is illustrated. This bump is such that it gives a gripping action for handling and lifting the door. Both of these operations are handled in this press by three operators, and the hit is simultaneous on both operations.

The part then moves to another press where the corners are folded over as illustrated in Fig. 3. This handling requires four hits of the press. Then the door is passed to the next press where the hinge holes are punched in the back flange. The door is then placed on another press where all flanges are trimmed and formed. The

side flanges are handled first, and then the front flange and finally the hinge back flange. The back is again bumped to make sure it is flat for the hinge assembly.

As production on this freezer model is limited, simple dies are used to keep down the overall die cost. During operation sequence, the part is inspected periodically. In the final operations, presses are grouped together, thus eliminating double handling and trucking. If the model had warranted greater production, then many of the operations could be combined to reduce direct labor, though original tool cost would be increased.

After the door is completed in the press room, it goes to the metal door assembly room where strap braces are spotwelded to the front and rear flanges. The corner flanges are kept to a minimum to reduce warping and buckling of the metal at these points, which reduces metal finishing and maintains a good door seal. Many

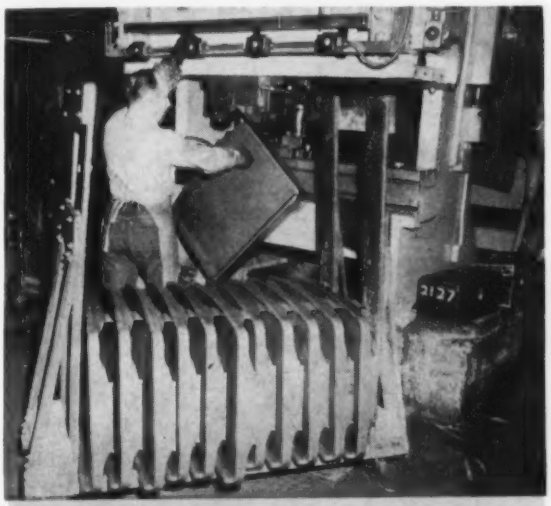


FIG. 3—Corner forming of the freezer door on a single strike die.

tests were conducted to determine whether corner gussets were necessary for having a flat door, and it was found that good results could be obtained without them. This eliminated four extra pieces of metal and also the spotwelding of these parts.

Porcelain Coats Dipped and Sprayed

After assembly, the door is placed on a chain conveyor, inspected and sent to the cleaning-pickling room. In process through the poreclain shop, the door is thoroughly cleaned and dried. The ground coat is put on by dipping and baked at 1450°F in a continuous furnace. The door is then inspected and placed on the finish coat conveyor, sprayed and baked. The only wiping is a 1¼-in. edge wipe on the inside flanges and corners, and the hinge holes on the back flange.

The white finish coat rejections were high at the start, but now have been reduced to a minimum. The defects causing most of these rejects were hair lining on the outside rear radii of the splash board due to drawing stresses, and chipping on the under side of flanges, particularly the side flanges. This chippage was caused by many things such as radii of edge flanges, flanges not broken 90°, spraying too much finish coat on the door edge flanges, and improper hanging of door through baking.

Door Flanges Broken 90 Degrees

Upon investigation of these items, it was finally decided to see that the flanges on the door were broken 90° or slightly more, to see that the radii of the corners were not fractured and that good flow of metal appeared, to see that the door was hung properly through the drying and baking furnace, and finally to see that the holes in the flanges were reamed after porcelain. All this was accomplished by closer inspection of the metal part after leaving the metal shop and final inspection of the door in porcelain shop. Proper handling of the door throughout the plant was also stressed.

Fig. 4 shows a finished freezer door from the porcelain shop, illustrating its flatness and overall exterior appearance. At the start of this program, quite a few warped doors came from the porcelain shop, making it difficult to get a door seal. By changing the technique of hanging the door through the porcelain furnace and reducing the amount of deposit of finish coat on the door, the warping was reduced to a minimum. At the start, the door was hung in the porcelain shop by the corner strap braces, which caused distortion of the door and chippage of the under side flange and radii. Hanging the door by the holes in the flanges in the porcelain shop caused warp-

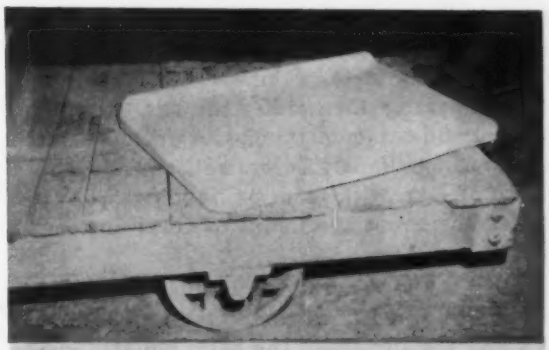


FIG. 4—A completed door, as it comes from the porcelain shop. The difficult contours, flatness, and good finish show clearly.

ing and chipping. This was changed to hanging the doors by special wire hangers which were placed on the inside radii of the side flanges, thus placing the door load on the radii which were more rigid than the flanges.

Each door is sent to the door assembly line

UNIVERSITY OF MICHIGAN LIBRARIES

before finally being placed on a freezer. Before starting assembly, the door is inspected and the inner door pan holes are reamed because of porcelain buildup. The insulation is placed in the door and the inner door pan and gasket are placed over the insulation. Then clips are driven into the door.

In order to have a floating door with good sealing properties, clips were used to give flexibility of door assembly. It has been found on this horizontal door that a flexible or floating inner door pan gives better sealing than would the rigid type of construction. This floating action is accomplished by making the hole in the inner door pan larger than the hole in the exterior door. Fastening of the inner door is done by a clip which is the same size as the exterior door hole, but overlaps the inner door pan. This assembly is placed on a freezer and the hinges are attached to the exterior shell and door. The freezer then passes through final inspection, on to the warehouse for run-in tests and crating.

This door construction is similar to that used on new ranges, but the splash board on the freezer door is a drawn section, while on the kitchen ranges it is a formed open-back section. It was once thought that this type of construction was impractical if not impossible, but by coordinating good design and good tooling, the door design became a reality.

Small Parts Coated in Automatic Machine

Efficiency in the painting or waxing of small steel parts is increased 200 to 300 pct in an automatically-operated spinning cabinet at Tinnerman Products, Inc., Cleveland.

The cabinet, designed and installed by Tinnerman engineers, also eliminates the necessity of workmen lifting and lowering baskets of fasteners weighing approximately 90 lb from floor level to and from a height of approximately 4 ft.

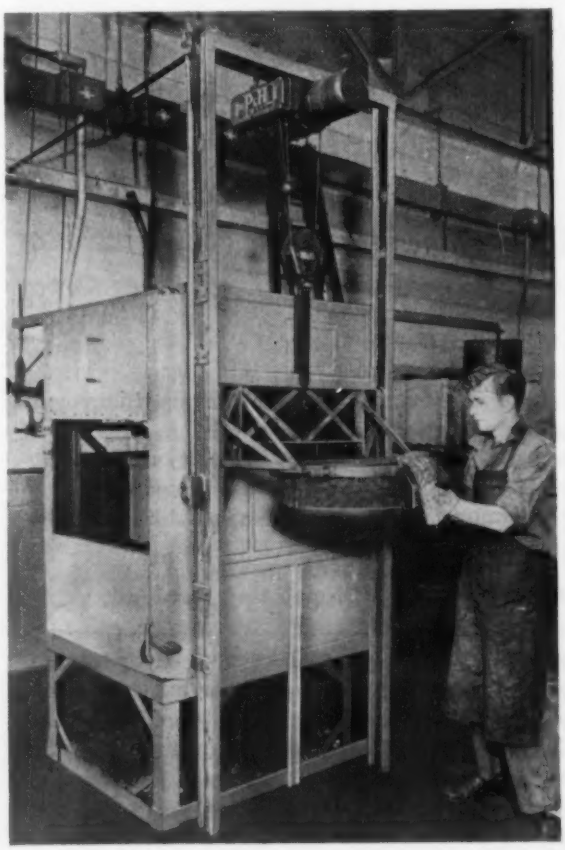
The basket to be filled with unpainted fasteners is placed on a lift, operated on a track in the front of the cabinet. Approximately 50 lb of fasteners is dumped from a can into the basket. The operator presses a button on the front of the cabinet, and the lift is raised by an electrically-operated hoist to the level of the front opening of the cabinet.

The operator then slides the basket into the cabinet and onto a metal disk. A drum, operated by two air cylinders beneath it, and filled to a depth of 7 in. with paint or liquid wax, is then raised to permit the liquid to cover the metal parts.

After the fasteners have been submerged the drum is lowered until the bottom of the basket is above the surface of the paint but still inside the drum. The basket is spun on the disk at 450 rpm for approximately 45 sec. At the end of this interval a dog contacts the basket and stops its motion.

The drum is lowered further to clear the bottom of the basket. Another basket is slid into the cabinet, pushing the first one out onto a conveyer track. This has been raised, by a series of pulleys and a compensating weight, to the level of the opening on the side of the cabinet corresponding to the opening on the front.

The basket of finished parts then rides down the conveyer into a pivoted rack, where the parts are placed in a tray ready for baking.



AUTOMATICALLY-OPERATED spinning cabinet developed by engineers at Tinnerman Products, Inc., for painting or waxing Speed Nuts and other small metal parts.

aluminum bars produced by the Properzi process

By D. I. BROWN
Feature Editor

PART II

A novel 3-roll cluster pass 15-stand type of continuous mill reduces the continuous cast aluminum bar to coiled rod. Finished product shows better than standard mechanical properties. Major end use is for nails and manufactured wire products.

The rolling mill which converts the continuous cast aluminum bar into rod at Nichols Wire & Aluminum Co. is also of Italian design. The mill is driven by a 50-hp motor. Power is transmitted to a 26-in. diam V-belt pulley and this directly turns the drive shaft which runs the length of the mill.

The top roll of each roll cluster at each stand is connected to the drive shaft by a sprocket and chain drive. Each stand has a simple gear reducer which controls roll speed and the speeds at each stand cannot be individually varied. Speed of the mill can only be changed by varying the speed of the motor.

There are three rolls in each pass of the 15-stand mill. Usually only 13 stands are employed to roll the rod sizes used at Nichols. The even numbered passes roll a triangular section and the odd numbered passes produce a round. The bar does not turn or twist through the mill.

The crystalline structure of the cast section,

TESTS ON AS-DRAWN WIRE

Diam. In Inches		Lot	Pct Elong. In 10 in.	Ultimate Tensile PSI	Conductivity Measurement
0.0785	Standard specification for electrical conductor cable		1.4	28,000	80.97
0.0785	Average values on 11 tests	#1, Coil #2	1.8	34,170	59.6
0.0825	Standard specification		1.5	27,500	80.97
0.0825	Average values on 12 tests	#1, Coil #2	1.9	34,179	59.85
0.1050	Standard specification		1.5	26,000	80.97
0.1050	Average values on 12 tests	#1, Coil #15	2.3	30,552	60.44
0.1320	Standard specification		1.7	25,000	80.97
0.1320	Average values on 12 tests	#1, Coil #3	2.4	29,788	60.08
0.1480	Standard specification		1.8	24,500	80.97
0.1480	Average values on 12 tests	#1, Coil #1	2.9	28,408	60.27
0.1480	Annealed (rod)	#1, Coil #1	2.7	26,150	60.99
0.1680	Standard specification		2.0	24,000	80.97
0.1680	Average values on 12 tests	#1, Coil #2	2.9	26,890	60.15
0.1865	Standard specification		2.0	24,000	80.97
0.1865	Average values on 12 tests	#1, Coil #1	3.2	25,267	60.71

UNIVERSITY OF MICHIGAN LIBRARIES

see headpiece, presents three 120° angles of preferential working. The mill rolls set at 120° alternately work the corners. A square section having four preferential angles of crystallinity, the designers believe, would require a much more complex mill.

The geometrical shape progression of rolling was chosen so that all main shafts of the rolling stands could be horizontal. Any other

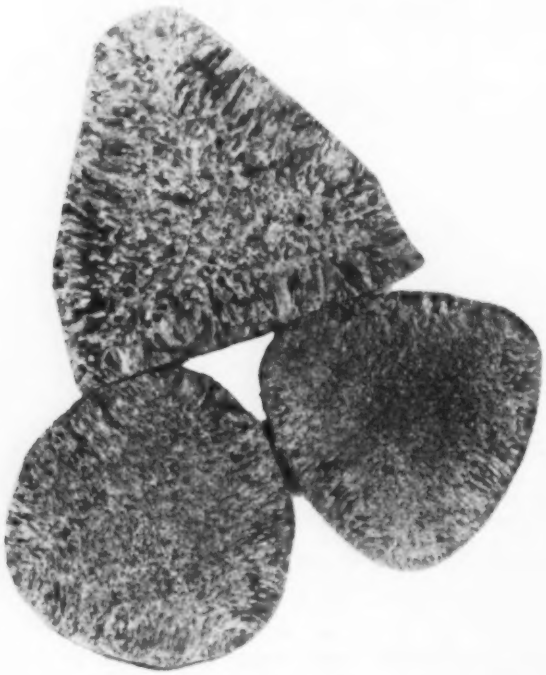


FIG. 2—Cross-sections of the as-cast bar and after first and second pass on the mill. At the top is the as-cast bar; left, first breakdown and right, the section after the second reduction. Etched with Turners reagent, 2X.

arrangement would require both horizontal and vertical shafts to avoid angular torsions or twists to the bar.

Screwdown pressure at each stand can be adjusted but only by moving the roll housings in or out on the main frame to which they are bolted. Roll diameters are about 8 in. The rod is coiled at the end of the mill. Coil weights average 225 lb although a wide range of coil weights can be made. Just after the rod leaves the finishing pass an air blast cleans the oil lubricant from the surface of the rod.

The macrograph of the as-cast section, see headpiece, shows a relatively fine crystalline structure. From the few cross-sectional samples examined, it appears that an occasional small center cavity is formed in the cast section. These cavities are not continuous, but appear at random. This flaw is not due to piping as solidification is too fast. It is believed they form from a combination of factors which can be eliminated.

First the metal from which the samples were cast was not fluxed and second a turbulence at the discharge end of the spout is sometimes experienced. Further control of pouring and better direction of metal flow into the mold cavity will soon be made and it is believed that these refinements will preclude the occasional porosity in the as-cast section which eventually is completely eliminated in rolling to final size.

In Fig. 2 the initial section plus the rod through the first and second pass are shown. The contour of the round to triangular roll pass can be seen and the refinement of the as-cast structure is plainly evident.

The as-cast structure disappears after the reduction taken by pass No. 7 as shown in Fig. 3. The finish size has a bearing on where as-cast structure disappears. The rod shown in Fig. 3 is rolled to a finish diam of 9/32 in. Other finish sizes, because of different mill draft on each stand, may shift the position at which the cast structure is worked out of the original bar.

The finished rod is exceptionally sound, fine-grained and the surface of the coiled rod has

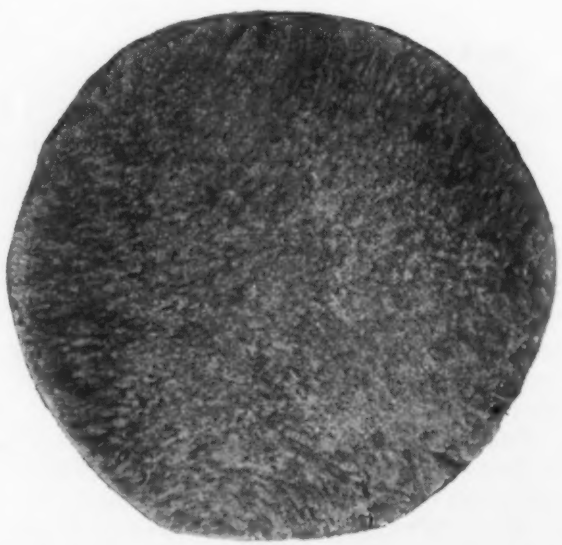
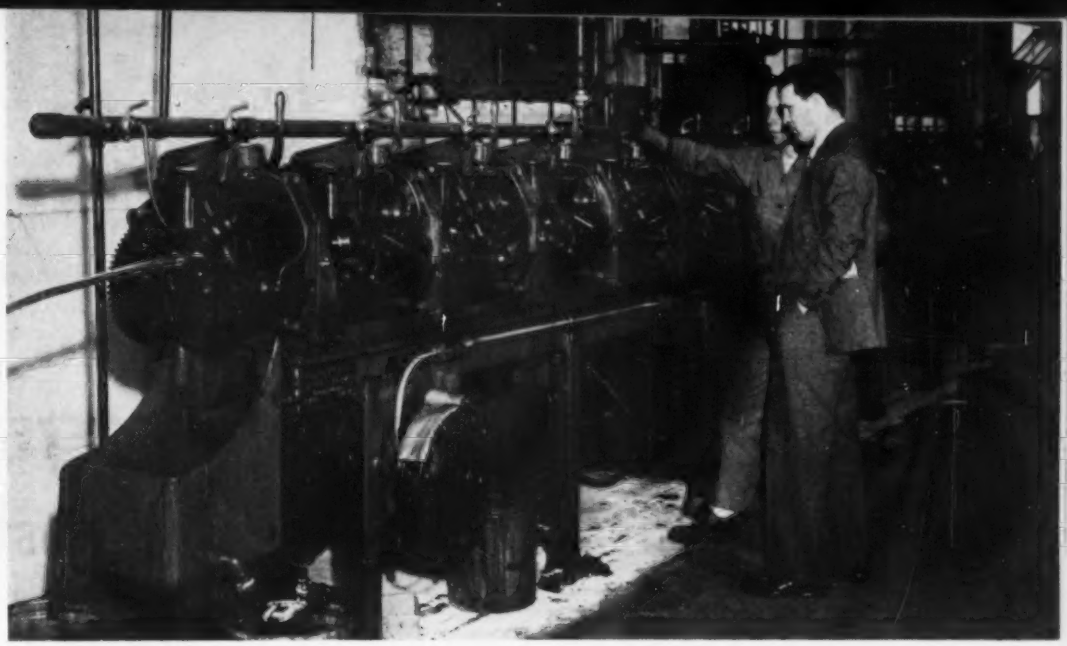


FIG. 3—A magnification, 7X, of the cross-section after seventh pass, shown above. The large grains at the perimeter are due to recrystallization because of rolling temperature at this pass. After the last reduction, the cross-section shows an equiaxed fine grain structure of very sound metal.

a much better than the average finish on rod made by conventional methods.

Mechanical and electrical properties of continuously cast and rolled Nichols aluminum are shown in the Table. The strength specifications for conductor cable are easily satisfied. To meet the rigid conductivity test, the rod can be finished at higher temperatures or the



THE CAST BAR at the right enters the continuous rolling mill. Each stand is separately chain-driven of the main drive shaft. The mill is 28 ft 8 in. long and the pass level of the mill is 46½ in. above the floor. Mill adjustments are easy and fast to make although few adjustments while rolling have been found necessary.

wire can be annealed by conventional methods.

Tests on a sample drawn from an as-rolled unannealed rod which fell just below the minimum conductivity are also shown in the Table. From annealed rod the samples from the same coil fully met the conductivity requirements. The test samples not marked annealed in wire size 0.1480 in. diam were taken from a coil finished at low temperatures so that some cold work was induced in the finished rod.

The success of the Properzi continuous casting machine in this country merits attention. It would be possible for small plants to gear their production of finished product very close to actual day-by-day consumption of semi-finished stock. The process also offers a means of dispersing some types of aluminum-producing mills to sections in which industry is not highly concentrated. Aluminum rivet wire makers can now get out of the big target areas much easier than heretofore. The process has good possibilities to makers of small diameter aluminum screw stock in sizes of ½-in. diam or less.

Nichols Wire & Aluminum Co. has on order a new mill designed to improve the operating characteristics of the experimental rolling mill. The casting machine needs no drastic modifications and when the control refinements are added, this machine will be capable of even better than present performance.

Part I of this two-part story covering the melting and continuous casting machine was published in last week's Iron Age.—Ed.

THE ROD is coiled at the end of the mill into bundles weighing about 225 lb. In operation the mill is truly continuous; hot metal is constantly poured into the casting machine, the cast bar automatically enters the mill and rod is continuously being coiled into one of the receivers shown in the foreground.

UNIVERSITY OF MICHIGAN LIBRARIES

Skin with integral T-shaped stiffeners can be extruded. It will find wide application where loads are high and there are few irregularities in contour. Physical properties are high. Forming of integrally-stiffened parts produced by any of the methods can be done on standard sheet-metal equipment, using only slightly different techniques.

INTEGRALLY-STIFFENED SKIN REVOLUTIONIZES AIRCRAFT CONSTRUCTION

extruded sections and forming methods

FOURTH OF A SERIES

For surface structure such as wing panels, fuselage and empennage surfaces, where loads are high and there are few irregularities in contour or structural continuity, integrally-stiffened extrusion shows exceptional possibilities. Extruded sections have high physical properties and because of the excellent detail configuration they will generally carry unusually high compressive stresses even with widely spaced supports. Thus both weight advantage and simplification of internal structure can be obtained.

The T-stiffener configuration makes for simplicity and efficiency where attachments, splices and joints are required. Because extrusion is obtainable in long lengths, reduction in the number of chordwise splices is generally possible. For some applications it may be worthwhile to machine the extruded section to obtain taper in skin thickness and section depth and to make integral reinforcements and attachment pads. It seems possible that future development will see production at tapered extruded sections.

Several shapes of practicable dimensions for integrally-stiffened aircraft surfaces have been extruded. Lockheed is using such shapes for tank panels on the F-94C.

The maximum size of the extruded section is determined primarily by the dimensions of the extrusion press and length is limited by billet size. The available extrusion pressure limits the complexity of the section shape and determines minimum thicknesses and fillets for successful extrusion of a particular shape.

The new extrusion press which the Air Force has ordered from Hydropress, presumably for its pilot plant at Adrian, Mich., will have a pressure in excess of 15,000 tons, far higher than any extrusion press now in existance. The limitations are interrelated and differ with various materials; the larger size extrusions in the harder alloys must have correspondingly thicker webs.

To take maximum advantage of press capacities Dow Chemical Co. developed the "octopus" type section shown in Fig. 17b. After extrusion the section was split and flattened to form a 17-in. wide stiffened sheet. A rail-shaped section was produced experimentally, about 1942, in 0-1HTA magnesium alloy. Considerable difficulty was experienced in obtaining satisfactory flatness in the surface after heat treatment. The more efficient T-stiffened section shown in Fig. 17c was extruded in the flat by Dow in 1946 of

By P. E. SANDORFF, *Research Engineer*
and GEORGE W. PAPEN, *Mgr., Production Engineering Dept.*
Lockheed Aircraft Corp., Burbank, Calif.

ZK-60 magnesium alloy, under an NACA contract.

To facilitate extrusion the section itself must contain no hollow elements. A logical configuration is provided by regularly spaced T-stiffeners, the spacing being determined by skin buckling requirements and the stiffener flanges providing high crippling strength and high section moment of inertia. An unsymmetrical flange may be advantageous for attachment but is not quite as efficient in bending or column action, particularly if the web and skin are thin.

Could Be Used In Wing Structures

The sections of Fig. 17 might be used in the upper surface structure of the wing of a large transport airplane. This section is naturally limited in width by the extrusion press die diameter if it is desired to extrude it flat.

Under a contract with the Air Force, Reynolds Metals Co. has completed the development of tools and processes to extrude the section shown in Fig. 17b, and split, straighten and heat-treat the product. Successful results have been obtained in extruding the hollow shape in 61S, 24S and 75S alloys.

It is believed parts of widths and thicknesses comparable to standard rolled sheet sizes can be produced on present equipment. Considerable variation in section details will also be permissible. Development of the processes necessary for obtaining satisfactory flatness in the finished heat-treated section has also progressed with considerable success.

To obtain sections of width larger than available die diameters, and yet avoid some of the extrusion and straightening problems, the semicircular sections shown in Fig. 17a have been proposed by Alcoa. The thickness limitations in this case are approximately the same as for flat extrusions.

To use many extruded and forged shapes to best advantage, some machining may be necessary. Skin thickness will be reduced, stiffener sections sized, and tapers in thickness and depth incorporated, leaving doubler pads for end attachments and local reinforcements. These machining operations are similar to those used in machining plate stock and essentially the same type of equipment is required.

Preshaping Cuts Costs

In savings in raw material alone, as compared with machining from plate stock, the use of rough outline sections shaped by extrusion or progressive forging show advantage. Though the extruded or forged shape costs more per pound, enough raw material is saved as compared with plate stock to show substantial reductions in total material cost.

In applying extrusion and machining together the advantages of better section inherent in extrusion can often be used to improve structural efficiency and simplify internal structure. Thus,

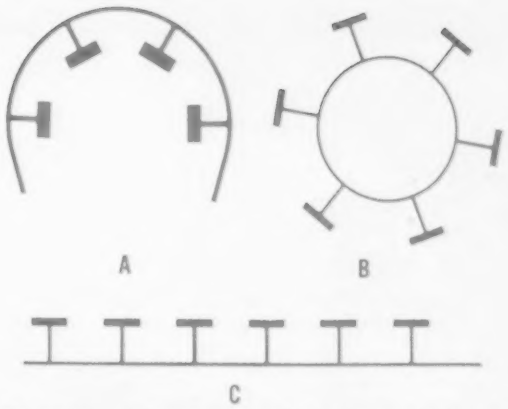


FIG. 17—How integrally-stiffened structure would be made by extrusion. The section shown in C, extruded flat, would be the most desirable. But to get larger sections from a press of given size, section B has been proposed. This hollow extruded cylinder would be slit and flattened to the shape shown in C. Certain problems in flattening would be avoided through use, instead of B, of the semicircular section shown in A.

an extruded section can later be machined to incorporate the desired degree of taper.

The application of integrally-stiffened construction to contoured surfaces such as wings and fuselages introduces the question of obtaining the proper curvature or contour.

Integrally-stiffened panels can be produced to the final shape, if desired, by forging or machining. Sections produced by rolling or extruding will have to be formed to contour subsequent to the basic operation. It may be that the warping due to heat treating, machining, stretching or the normal forging tolerances will require some degree of straightening operation on the panel regardless of original method of obtaining contour.

In view of the above it has been considered imperative to develop the forming techniques along with the basic operation of obtaining the desired cross-section. The Air Force has sponsored an extensive investigation into the forming problem through a research program now completed at the Lockheed plant.

It was assumed at the start that the section to be formed would be neither consistent nor constant in cross-section shape and in plan form.

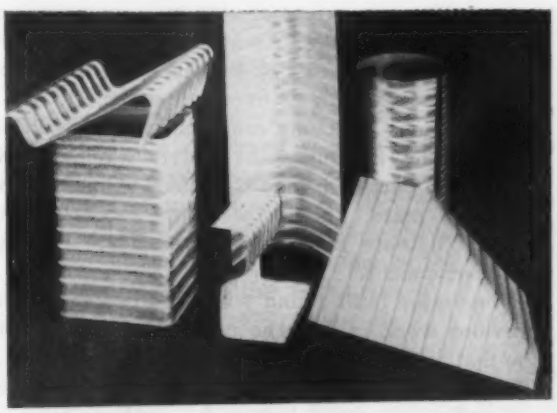


FIG. 18—Sample forming in integrally-stiffened sheet. All of these shapes were formed with conventional sheet metal equipment.

UNIVERSITY OF MICHIGAN LIBRARIES

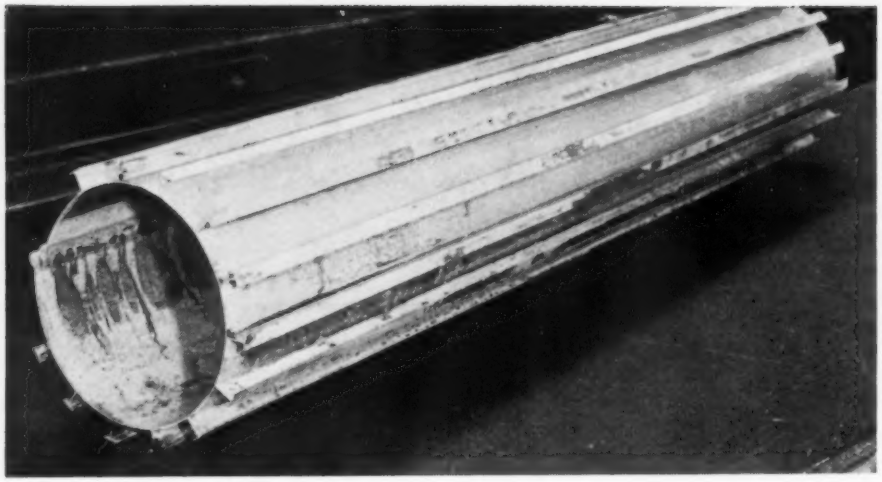


FIG. 19—One of the integrally - stiffened cylinders extruded by Reynolds Metals Co. in an Air Force research Program.

Integrally Stiffened Skin

Continued

Springback, therefore, would be difficult to determine. The skin between the stiffening elements would tend to buckle during the forming operation, leaving a wavy surface, and in extreme cases, the stiffener elements might actually punch through the skin. The stiffening elements would tend to buckle during forming and would have to be supported. Preliminary tests have proved that most of these fears are justified.

All of the common methods of forming sheet material are being investigated. For example: Bumping, a means of obtaining a contour or large radius by forming an infinite number of bends which blend into the desired curvature; rolling, using a Farnum contour roll or some similar type rolling equipment; die forming, use of hard-faced dies in a mechanical or hydraulic press; stretching, use of various type stretch presses or stretch dies in a large press. Each of the above methods depends to a large extent on specific type of equipment and has certain advantages and disadvantages.

Low Melting Point Being Studied

Support of the stiffeners and prevention of inter-stiffener buckling of skin appear to be the paramount difficulties. An attempt is being made to solve these problems by the use of dies, rollers and mandrels cut to fit over the stiffener. Also, investigations are being conducted relative to the use of a low melting point matrix which would encase the part and have the effect of making it act like a plate. Should this prove successful, it would eliminate much expensive punch, roll or die development.

The major fault found with this procedure on previous work is that the part after removal of the matrix materials tends to assume a still different contour. This relaxation or springback is not sufficiently consistent to be predictable.

As forming either completely from the flat or straightening after machining or forging will be necessary, considerable work remains to be done to arrive at a satisfactory production method.

Conclusions of Lockheeds study of development to date are herewith presented.

The cost of airframe construction can be reduced by the judicious use of integrally-stiffened structure. The major cost item at present is in assembly and assembly tooling. By combining skin and stiffeners into one unit, assembly costs may be reduced considerably.

Size of Machine Parts Not Limited

Additional advantages of integrally-stiffened structure may be found in its greater rigidity, surface smoothness, and its structural efficiency, which often results in weight saving.

Machining from thick plate provides a ready means of making integrally-stiffened structure. It is highly flexible in design, permitting variations in section to incorporate taper, local reinforcements, integral doublers and heavy attachment panels. The simple rectangular stiffener shape available by machining is generally considered poor from a structural standpoint; this disadvantage is offset by freedom to reduce stiffener spacing and thus make the skin more effective under compression, and applications to design have shown substantial weight savings.

The size of machined parts is limited only by size of machining equipment and material availability; large size parts with any desired taper eliminate the need for splices and so save both their cost and weight. The one great disadvantage of machining is that of the original material, 75 to 95 pct is cut away in chips. Cost of raw material is therefore high. Machining time is also a large item with present-day equipment.

In spite of this, machining from plate will in certain applications show cost advantage as well as simplification and weight savings over conventional structure. It appears most valuable as an interim method or for prototype construction until it becomes possible to obtain blank stock of the outsize dimension, made by some other process.

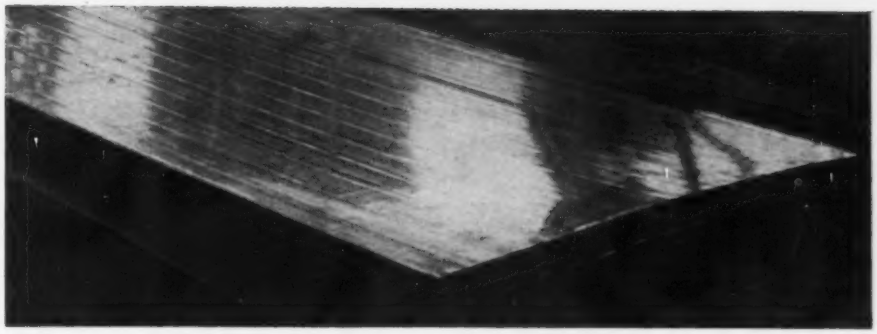


FIG. 20—The integrally - stiffened sheet made by slitting the cylinder of Fig. 19, and flattening and stretching it.

Manufacture of integrally-stiffened surface by extrusion promises many advantages: Low cost, high material strength, and wide latitude in detail section design. Because of recent advances in technique, very thin as well as very heavy sections can be made available in flat sheets of relatively large width.

Section Taper Desirable

In general, taper in stiffener and skin section as well as local variations in thickness of reinforcement and attachment purposes will often be necessary to preserve the weight advantage of using extrusion; these irregularities can be obtained by machining but this represents an increase in cost.

No difficulty is anticipated with moderate forming to single curvatures, but any considerable forming will introduce new production problems. Therefore, while extrusion basically appears exceptionally attractive for weight saving and simplification of structure, its application will probably be limited to long-length, essentially flat panels unbroken in structure and requiring a minimum of tailoring and tapering. Advancement of machining technique will broaden the field of application.

Press forging shows great possibilities for cost savings where high quantity production is expected. While the basic section obtainable by forging is not as efficient as that which can be extruded, forgings in general will still be structurally equivalent for many applications, because of the additional detail which may be incorporated in the forged part, such as taper of any kind, irregular spacing and angularities, local variations and reinforcements, and edge doublers.

A minimum of machining and forming, perhaps none at all, will be required to finish the press forged parts. At present it appears that the application of press forging will be limited to small or moderately sized parts, and that, because of minimum thickness limitations, the lightly loaded applications will probably show weight penalties.

Rolled-ribbed sheet of very light gage offers special advantages in application to lightly loaded structure, where rigidity, shape, and surface smoothness are desirable but loads are so low that skin thickness is taken at the practical minimum for handling or fabrication purposes. In such cases, the much more rigid rolled-ribbed sheet may be had for the same weight, permitting a reduction and simplification of internal structure and consequent saving in cost. At the same time surface smoothness and rigidity would in general be improved.

Other Means Give More Strength

Where design is determined by strength requirements rather than rigidity, however, rolled ribbed sections are much inferior structurally to those obtainable by extrusion or other methods.

Each of the various manufacturing methods has both limitations and advantages making it particularly well suited for some applications yet unsatisfactory for others. When properly applied, each method—machining, extrusion, forging and rolling—affords considerable benefit in its own field of application.

New Process Enables Hidden Arc Welding on Vertical Surfaces

Automatic hidden arc welding is no longer limited to jobs where the joint is in a position for downhand welding. A new process developed by the Lincoln Electric Co., Cleveland, makes possible hidden arc welding of horizontal joints on surfaces positioned anywhere from flat to vertical. The new process consists of new welding methods, procedures and equipment which overcome previous difficulties of directing the electrode and retaining flux and molten metal in a joint not lying flat.

Referred to as 3 o'clock welding, the process offers advantages such as the saving in handling and setup time required when each weld must be positioned for downhand welding, and permitting welds from both sides of a joint simultaneously. In addition, smaller sizes of electrode wire are used, tendency for burn through is reduced, and back-up strips can be eliminated where two arcs on opposite sides of the work are used.

The accompanying drawing shows a horizontal seam in vertical plate being welded from both sides simultaneously. The joint is stationary as two electrodes are moved along opposite sides of the work. Flux is carried on a moving belt so that it is stationary in relation to the work.

UNIVERSITY OF MICHIGAN LIBRARIES

METAL FINISHING *forges ahead*

By ADOLPH BREGMAN
Consulting Engineer, New York

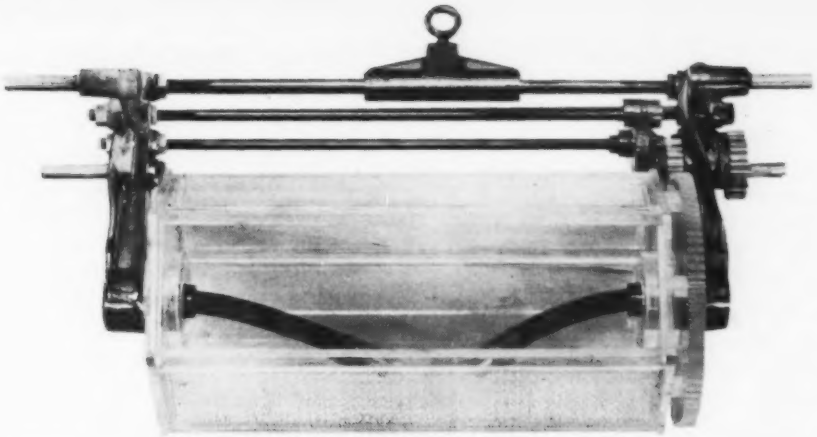
The metal finishing industry has made more progress in the past 5 years than in any like period in its history. Many new processes have been produced, and marked improvements in old techniques are evident. Shortages of some materials are getting more critical, and emphasis is on developing substitutes.

Metal finishing as an industry has experienced an unparalleled growth and advancement during the postwar years. Without attempting to evaluate this progress by a mathematical formula, it is no exaggeration to state that its rate of progression is nearer to geometric than arithmetic. In brief—it is a healthy, progressive and productive industry.

Metal finishing broadly may be divided into the following categories: Mechanical (polishing, buffing, tumbling); chemical (cleaning, dips, contact or immersion plates, etches, etc.); electrolytic (electroplates and anodizing of aluminum and magnesium); and non-metallic (lacquers, enamels, synthetics applied by spray, dip, brush, roller-coating, etc.).

Belt polishing is an old operation which has lately come back into popularity. The equipment consists essentially of idler pulleys and back stands which eliminate the specialized work of heading up abrasive wheels. The abrasive belt presents a large surface to the work and attains much longer life than the abrasive wheel without its successive headings. An important factor in belt polishing is the use of contoured contact wheels on which the belt follows the contours of irregular or complicated shapes.

By the development of more flexible equipment, proper contact wheels with the correct face width and diameter, density, speeds, etc., possible uses for abrasive belt finishing have been greatly extended. Equipment is now available for a wide range of work in various shapes and sizes, providing suitable belt tension controls. The belts may be made of canvas, leather, rubber, cloth, and similar materials. The contact wheels may be serrated or con-



MERCIL TYPE PLEXIGLAS cylinder with hanger equipment and flexible dangler contacts.

toured, resilient or hard, as required for the job.[1]

Liquid abrasives are a comparatively young development. The old type of bar polishing compounds have always produced excessive waste through stubs, melting and throwing off of the polishing compound and the formation of heavy beads. During recent years, polishing compounds have been applied to the cotton in a liquid medium, aqueous or nonaqueous (the former being preferable), by spray through a gun which may be operated with a foot valve. This permits the polisher to devote his hands exclusively to work. Liquid abrasives also provide more uniform application to the wheel, giving longer wheel life as well as saving a substantial portion of the operator's time and material used.[2]

Tumbling for low-cost finishing is one of the most promising of the processes now in use. The art is old, but general realization is growing that there are many applications for tumbling which have not yet been explored. Costs are low and finishes are obtainable comparable to cutting down and greaseless polishing on the wheel. By ball burnishing, lustres are achieved which come very close to the mirror finish on the buffing wheel.[3]

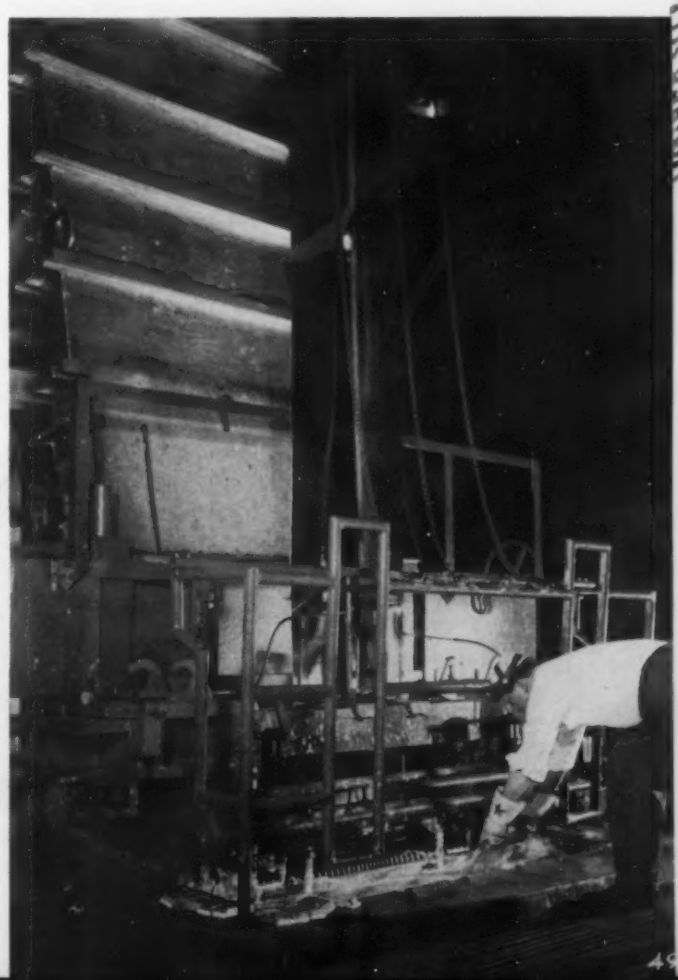
Removes Stubborn Soils

One of the most interesting newcomers to cleaning is the di-phase cleaner. It consists of an aqueous alkaline solution and a hydrocarbon solvent which, in the bath, separate into two phases or layers. This type of cleaner is particularly advantageous in the removal of buffing compounds and similar stubborn soils. In many instances, it has eliminated the necessity for solvent degreasing. In the bath, each phase removes the soil which it preferentially wets or dissolves. This action may be augmented by surface active agents. Because of the diverse soils removable, freedom from hazards and the variable schedules possible, di-phase cleaning practice is very flexible.

Another newcomer is the liquid abrasive blast, in which the abrasive is propelled by water instead of air. The use of a wide range of abrasives is possible and a fine finish is produced, finer than with sand or steel and with no distortion of the work or embedding of abrasive. If dry steel shot is used and embedding occurs, rust will follow. The use of water as a propelling medium eliminates the embedding and such attendant evils as silicosis hazard.

Another important advance in metal cleaning is the sodium hydride pickle for removing scale from stainless steel. This process has found

ADDING ZINC to the zinc pot. Structure at the left is the exit end of the cooling furnace. Photo courtesy of Armco Steel Corp.



UNIVERSITY OF MICHIGAN LIBRARIES

wide application, especially in plants large enough to warrant the installation of a substantial set up of fused caustic soda and hydrogen.[4]

Chemical polishing has only lately come to the fore, using phosphoric, nitric and acetic acids in various combinations. Applied to copper and copper alloys, the results have so far not been substantially better than the nitric-sulphuric dip. However, for aluminum and its alloys, the results seem to be far superior.

Simplifies Plating On Aluminum

Electrolytic polishing of silver and stainless steel has made long strides.[5] Electropolishing is more easily applicable to flatware than to hollow ware. Although the process has not proved to be a full replacement for the wheel in all cases, it has reduced buffing to such an extent as to make it a notable cost-saver. The combination of electropolishing and chemical polishing has provided a finish on aluminum which is said to be the equal of anodizing in reflectivity.

The zincate bath has greatly forwarded the electroplating of aluminum. In this process, a sodium zincate solution is used to deposit a film of zinc on the cleaned aluminum surface, by contact. The work with the zinc deposit may then be removed, rinsed and plated with copper, nickel and other materials, as desired. Similar methods have been worked out for plating on magnesium, using zinc pyrophosphate instead of sodium zincate. The solution operates satisfactorily but there are reports of porous deposits which later flake off. The electrodeposits on magnesium have not yet been found wholly satisfactory for outdoor exposure.

PRP Is Outstanding Advance

In electroplating equipment, there is a trend away from rectifiers and back to generators because of the greater reliability of the latter, especially under overload and other critical conditions. The rectifier has suffered in many instances from the impure air in plating plants which, since the rectifiers were air-cooled, found its way into the stacks and corroded them into a breakdown. A new type of rectifier with oil-cooled stacks may remedy this condition.

Another innovation in low-voltage current-supplying equipment is the homopolar or ascyclic generator,[6] which is said to produce current more economically by (a) reduction of mounting area; (b) increased generator efficiency; (c) lower installation and operating cost; (d) greater flexibility; (e) greater dependability.

Periodic reverse plating is without doubt one of the outstanding accomplishments of recent years. It consists of plating with direct current for a few seconds, then reversing for a much shorter period; and repeating these periodic reversals to obtain smoother, more dense and brighter deposits. PRP has also made it possible to plate large irregular rack loads without burning the outside pieces or skimping the pieces on the inside of the rack.[7]

Another new development is the tin-zinc plating bath with deposits varying from 50 to 80 pct Sn. The corrosion resistance of this deposit is similar to zinc, and cadmium and can be readily soldered and welded.[8]

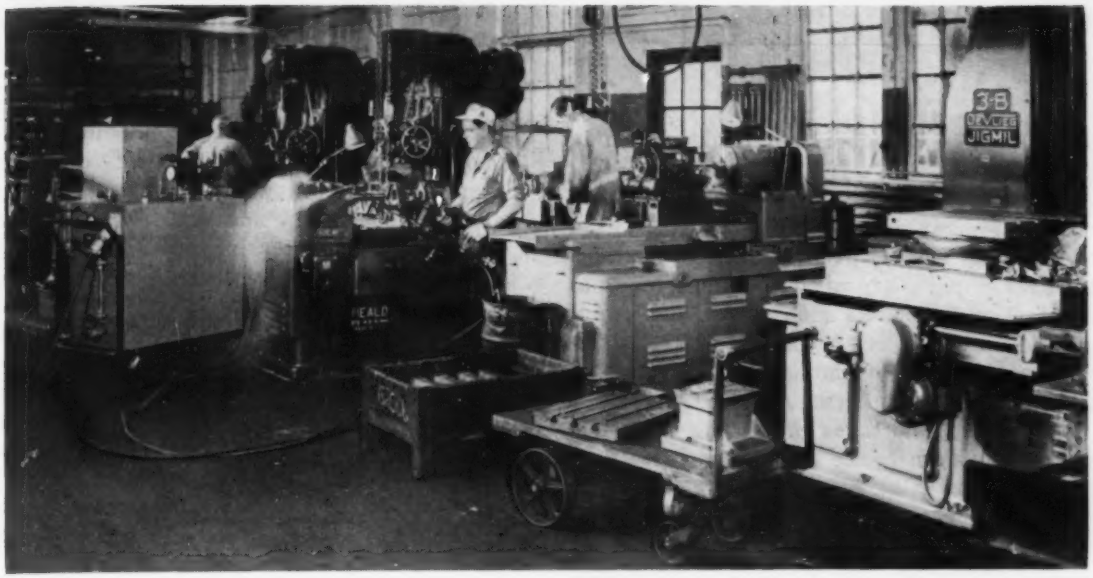
Speculum plating has received more attention in England, than in the United States, producing a deposit of approximately 55 pct Cu and 45 pct Sn. The control of this bath poses a problem, using copper and tin anodes in alkaline solutions and controlling the rates of deposit from these anodes, in some instances by separate current sources to each type of anode. Recently, attempts have been made to operate this solution with insoluble anodes, replenishing the solution with copper and tin salts.

Leveling Solutions Gain Interest

In the graphic arts, a large user of electroplating, important advances have been made in nickel plating of stereotypes in the nickel chloride-acetate bath; the use of the cobalt-nickel solution in plating electrotypes; tin platinfi of electrotype shells; the use of the copper fluoborate bath for plating electrotypes and rotogravure-cylinders; iron deposits on electrotypes and in the manufacture of engraving plates; and zinc plating of deep-etch offset lithographic plates.[9]

A recent move in chromium plating has been the use of the fluosilicate solution. This bath is said to possess the ability to plate bright even with current interruption, a wider bright range and better throwing power. Barrel plating of chromium should be a much easier operation with this type of solution since the make-and-break of the current through the work in the barrel will not adversely affect the deposit.[10]

Leveling solutions have attracted a great deal of interest. Such solutions deposit a plate heavier in the recesses and lighter on the high spots of irregular surfaces; it eliminates much of the grinding and polishing before plating. In this type of solution, the important factors are the organic addition agents and metallic constituents of the baths. However, a "level" deposit is not necessarily a bright deposit. A deposit may be irregular in surface contour and still be bright. Still, wheel finishing a



SPEEDYELECTRIC STEAM-JET cleaner in use at Norton Co., Worcester, Mass., cleaning machines preparatory to repainting.

level deposit is an easier operation than on an irregular deposit.[11]

The acid copper bath is enjoying a revival because of the greater ease of buffing and polishing the deposit, and the higher speeds obtainable with improved solutions. Nickel plating with fluoborate solutions is receiving close attention.[12]

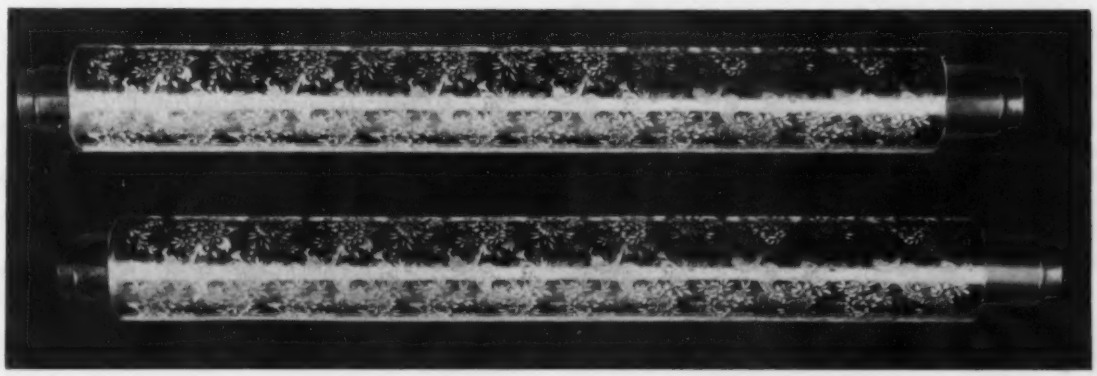
Metal coating by high vacuum evaporation has taken a firm foothold in the application of metals to glass, plastics, paper, fabrics and thin metal sheet. Beginning as a laboratory technique, it is now also in expanding commercial use for optical mirrors, glass light bulbs, quartz crystals, mica sheets for condensers, molded plastic toys, Christmas tree decorations, automobile horn buttons, plaques, costume jewelry, sequins, ribbons, wrappings, and other products.[13]

In anodizing aluminum, preference is shown for the sulphuric acid solution in general commercial work because of the ease of coloring or dyeing the oxide coat to any desired color, including pastels. Recently, however, a multicolor printing process has been developed in which the dyes are applied by roller coating, silk screen and other methods, and then sealed. This process is said to be equally applicable to the chromic or sulfuric acid anodized surface of aluminum.[14]

A new scratch and wear resistant hard coating for aluminum which makes it usable in many applications formerly restricted to steel alloys has been developed by Glenn L. Martin Co. "MHC" finish, as it is called, gives aluminum a scratch and wear resistant coating which is file hard, smooth and heat resistant. Wear resistance is superior to that of hard chrome plating or cyanide case-hardened steel. Cost may be less than chrome plating or heat treating steel.

Magnesium has been anodized by the use of sodium hydrate-phenol solutions. The process has been marketed under the trade name

GRAVURE ROLLS are among the articles that can be plated with a minimum of rejects through use of SRHS solution. Such self-regulating baths are always in good plating balance. Photo courtesy of United Chromium, Inc.



UNIVERSITY OF MICHIGAN LIBRARIES

"Manodizing" by Hanson-Van Winkle-Munning Co., Matawan, N. J.

Electroforming has broadened into a primary process of manufacture, and now widely used for molds for casting plastics, rubber, etc. It is also used in a variety of applications for final manufactured products such as pen and pencil tips and similar objects. One of the most striking uses of electroforming has been in the manufacture of band instruments.[15]

The present shortages of plating materials has forced a turn to the use of iron instead of copper or nickel. Electroforming and the graphic arts have found electrodeposited iron suitable in a number of instances, using the sulfate-chloride and the all-chloride solutions. Iron can be employed to build up worn parts and to salvage worn or mismachined pieces. Some of the products of electroformed iron include printing plates, computing cams, radar, plumbing, letter embossing dies and record stampers.

One matter which has claimed increasing attention among electroplaters is the disposal of waste to prevent the pollution of streams. Methods of waste disposal in use are: (a) electrolytic decomposition of cyanide; (b) chlorination to form the cyanate and then nitrogen; and (c) ion exchange, which was originally applied in electroplating installations to purify the water supply and is now in use for the recovery of metals and chromic acid.[16]

In the field of nonmetallic finishing, a recent innovation consists of hot lacquers (about 150°F) which permit substantial increases in the solids content of the material used, often making possible the application of the finish with one coat instead of two, without sagging; also, very important, eliminating blushing.

Shortages Are More Acute

Organic coatings are now being applied under even higher temperatures by flame spraying.[17] The technique is analogous to the metallizing process of atomizing and applying molten metals and alloys. Polythene or polymerized ethylene can be used as a coating without preliminary dispersion in solvents and without a later baking. This method is suggested for coating metal products and for building up strip coatings on lubricated patterns or mold cavities to produce plastic products in small quantities at low cost. Styrene is used in copolymers with butadiene, drying oils, and alkyd resins to obtain faster drying, harder films and better water and chemical resistance.

A major advance in coatings has been made by silicone resins, which are exceptionally resistant to chemical fumes, dilute and concentrated acids, alkalies, salts and oils. Silicone-based finishes have great heat stability, weather resistance and durability.

The electrostatic spray has made an important contribution to the metal finishing industry, making it possible to coat objects of complex shape on all sides with a minimum of labor and lost or wasted material. This process is also useful for detearing of the work.

Rack coatings have been improved by the use of plastisol, applying heavy coats with one dip over a prime coating. One procedure which has spread rapidly is the use of chromate coatings as protectors of zinc and also cadmium. These chromates range in appearance from clear to a variety of colors and have been found excellent preventives of corrosion under adverse atmospheric conditions. Clear chromate is also applicable to other metals such as copper and brass for tarnish prevention.

The most pressing problem of the metal finishing industry at this time is the shortage of materials, such as cadmium, nickel, copper and zinc. Chemicals in a wide variety are available only in limited quantities. Unfortunately, as fast as a substitute is found, it is either another of the scarce materials, or it rapidly becomes scarce.

References

[1] *E. E. Oathout, "Abrasive Belt Polishing," AES Proceedings, 1950.*

[2] *E. T. Candee and S. L. Doughty, Jr., "Water Base Buffing Liquid," AES Proceedings, 1950.*

[3] *A. Bregman, "Tumbling for Low Cost Finishing," Metal Progress, May 1950.*

[4] *A. Bregman, "Metal Cleaning Progress and Tests for Cleaners," Metal Progress, March 1950, p. 394.*

[5] *C. L. Faust and E. E. Graves, "Industrial Electropolishing," AES Proceedings, 1948.*

[6] *G. J. Berry, "The Acyclic Generator for Electrolytic Processing," 98th meeting of the Electrochemical Society, Oct. 12, 1950, Buffalo.*

[7] *A. Bregman, "Periodic Reverse-Current Electroplating," Metal Progress, Aug. 1950, p. 199.*

[8] *E. E. Halls, "Electroplated Tin-Zinc Alloy Coatings on Iron and Steel," Metallurgia, Dec. 1949; Metal Finishing, Apr. 1950.*

[9] *E. I. Peters, "Advances in Electrodeposition in the Graphic Arts," AES Proceedings, 1950. K. L. Koersler and R. R. Sloan, "High-Speed Nickel Plating of Curved Stereotypes," AES Proceedings, 1950.*

[10] *J. E. Starek, H. Mallstedt and F. Parsal, "A Self-Regulating High Speed Chromium Plating Bath," AES Proceedings, 1950. W. Czygan, "Self Regulating Solution Speeds Chromium Plating," THE IRON AGE, Feb. 16, 1950.*

[11] *C. L. Faust, "Leveling and Smoothing by Electropolishing and Chemical Polishing;" G. W. Jernstedt, "Leveling With P. R. Current Plating;" L. Weisberg, "Leveling in Cobalt-Nickel Solutions;" A. H. DuRose, W. P. Karash and K. S. Willson, "Surface Contour and Leveling," all in AES Proceedings, 1950.*

[12] *R. J. O'Connor, "Production Barrel Plating," Plating, 1950.*

[13] *P. Godley, "Metals Coated by High Vacuum Evaporation," THE IRON AGE, Apr. 1, 1948, p. 90.*

[14] *Process developed by Sinclair & Valentine, 611 W. 129th St., New York.*

[15] *F. K. Savage, et al, "Electroforming Techniques," AES Proceedings, 1944, p. 173.*

[16] *Information on this AES Research Project and a full list of other projects can be obtained from American Electroplaters' Society, P.O. Box 168, Jenkintown, Pa.*

[17] *T. A. Dickenson, "Flame-Spraying Plastic Coating," Organic Finishing, October, 1950.*

COLLOIDAL GRAPHITE

Lubricates Diecasting Machines

By W. E. LANG
Service Engineer,
Acheson Colloids Corp.,
Port Huron, Mich.

Colloidal graphite lubricates various working parts of the diecasting machine, in addition to acting as the die lubricant. It offers stability at high temperatures, prevents adhesion, and resists the scrubbing effect of the hot metal.

DIECASTING of zinc and aluminum alloys, because of the high temperatures involved, poses problems in lubricating the machines and die cavities. These difficulties cannot usually be solved with conventional petroleum lubricants, which either decompose rapidly at temperatures above 300°F or do not possess the required "lubricity." Colloidal graphite, because of its stability at high temperatures, excellent lubricating qualities, ability to prevent adhesion and lack of tendencies to build-up, finds many applications in the lubrication of both the dies themselves and the working parts of the machines,

Lubrication Increases Die Life

Lubrication of the faces of the die cavity is required to insure proper metal flow. It also increases the life of the dies by providing a lubricating film on the die face. This film resists the scrubbing effect of the hot metal and inhibits its tendency to combine with the iron in the die surfaces.

Colloidal graphite is especially well suited for this purpose since it will not volatilize when in contact with the hot metal and cause pock marks due to gas formation. It will perform these functions when present in extremely thin films which will not affect dimensions or cause undue discoloration of the parts being cast. As it is not volatilized or otherwise destroyed in the casting process, it need not be applied as often as other lubricants. This fact alone often results in an increase of as much as 25 pct in production.

Either water or oily materials can be used as carriers to apply the colloidal graphite. The choice depends on the metal being cast, subsequent finishing operations, the configuration of the cavity and the design of the die. Water is a very desirable carrier because it completely dries before the die is closed. This eliminates gummy deposits on the dies and adjacent parts of the machine and does not constitute a source of fumes, nor is it a fire hazard.

However, the use of water requires greater care in application because it will deposit the colloidal graphite only where it is applied. It will not spread to adjacent parts of the die face or creep into ejection pin bearings. As a result, it will not lubricate these parts where no other provisions exist. These objections are often easily remedied.

Proper spray equipment and care in application will assure complete coverage of the die face in most cases. Ejection pin lubrication, where these pins protrude a sufficient distance, will be taken care of by the die lubricant itself which plates the surface of the pins, just as it does the die face. A graphoid surface of microscopic thickness is formed which provides good lubrication and protection against the tendency of metal to adhere to the surface.

Where ejection pins do not protrude sufficiently to receive a coating in the normal cavity spraying process, a solution was worked out which has given very good results over a period of years. This consists of merely providing oil passages which lead from oil holes at the top of the ejector pin mounting plate to points about midway from each end of the pins. The lubricant, being applied at the center of the pin travel, works out at the ends rather than accumulating sticky deposits at the center.

Oil Residue Flushed Out

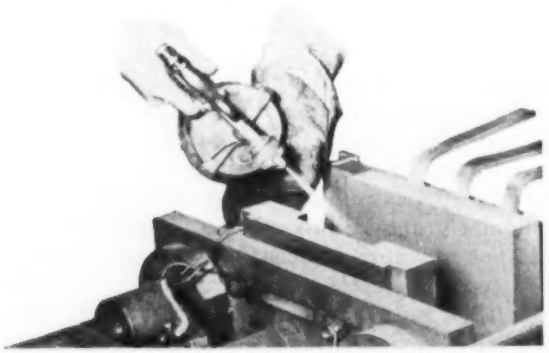
The gummy carbonaceous material resulting from the oil breaking down is repeatedly flushed out at the ends; there is no accumulation of residue to bind the pins or cause scuffing and rapid wear. A few drops of a lubricant consisting of about 6 oz of colloidal graphite in oil (Oildag) to 1 gal of SAE No 30 oil should be applied twice per shift. This permits

UNIVERSITY OF MICHIGAN LIBRARIES

the dies to be operated with no ejection pin service for as long as 1000 working hr or 100,000 shots.

If it is not possible to provide positive means of lubrication in this way, coating the pins when they are installed with a concentrated dispersion of semi-colloidal graphite in oil (Dag Dispersion No. 170) will often provide satisfactory lubrication for a considerable length of time. After the oil evaporates or works out, enough graphite will remain to provide adequate lubrication.

To insure proper adhesion of the colloidal graphite to the die face when using it in the water dispersed form, all oily materials must be removed with a suitable solvent. The die temperature should also be raised to at least 250°F before being sprayed.



SPRAYING a Dag colloidal graphite dispersion in the cavity of a permanent mold. Courtesy of Cox-Ware Corp., Kirkwood, Mo.

Special spray guns have been devised that overcome the inadequacies of conventional paint spray guns or blow guns having a tube attached. These special guns will spray either at right angles or 180° angles at the same time. This permits spraying two surfaces simultaneously.

Very thin films of graphite are adequate for coating die faces. A mixture of one part of colloidal graphite in water (Aquadag) to 100 parts of water is normal. Greater dilutions are entirely feasible if the dies are shallow and have sufficient draft. At a dilution of 1:100 the lubricant cost is approx 30¢ per gal. As the film of graphite is not destroyed each time a shot is made, the frequency of spraying is often reduced considerably. In many cases one application in 10 or more cycles is adequate. This appreciably increases production rates.

One of the greatest advantages of using colloidal graphite in water exists in the casting of aluminum and its alloys, because of higher prevailing temperatures. Superior results have also been observed in many cases with zinc. The small amount of graphite left on the surface of the castings is seldom objectionable as it apparently has no effect on subsequent plating or painting operations.

In case of barrel polishing, a mottled effect is often observed. This is apparently caused by the lubricating effect of the thin films of graphite protecting the underlying surface against the polishing action of the tumbling process. This may be objectionable when the castings are not subjected to further surface treatment.

Graphite Used With Oil and Water

To overcome this objection as well as those involving coating problems due to the difficulty in reaching all parts of a deep cavity with a water dispersion, colloidal graphite in oil (Oildag) has often been used in small amounts in conventional oily die lubricants. About 2 pct of Oildag in the normally-used lubricant, or even kerosene, frequently yields improved results with greater intervals between spraying.

Colloidal graphite in both water and oil carriers is used succesfully in diecasting the conductors and cooling-fan blades of electric motor rotors. The type of carrier chosen depends on the particular demands of the individual process. In general, the inside of the cap which forms the fan blading and consists of one end of the fixture in which the laminations are clamped, the side walls of the die or mold in which it is placed and any other faces subjected to contact with the molten aluminum are coated with a water dispersion.

The bottom face of the mold and the ejector pin which passes through it are swabbed with a mixture of 3 pct Oildag in an SAE No. 30 oil. As graphite is inert in the presence of Freon, there is no objection to its use in making rotors for hermetically sealed units, which account for a major percentage of the production of these rotors.

Colloidal Graphite Stays Put

On the diecasting machine itself there are several points where the ability of colloidal graphite to stay put has been found to result in better lubrication. The tip of the ram has been very successfully lubricated by brushing on a heavy concentration of semi-colloidal graphite in oil (Dag Dispersion No. 170) applied without dilution. This product, consisting of 50 pct graphite in oil, contains no soaps to form objectionable residues as is the case with greases.

Any other sliding or rotating parts of the machine that are exposed to elevated temperatures will be provided with better lubrication if about 2 pct of Oildag is mixed with the lubricant currently being used.

news of industry

NPA Set on CMP—Ready or Not, Here it Comes

A practical controlled materials plan means a lot of spade-work . . . You can't rub it like Aladdin's lamp and wish . . . Last CMP was child of painful mutation—*By Bill Packard.*

New York—You are going to get a controlled materials plan by July 1, but it won't work like Aladdin's lamp. Just putting the CMP label on a plan will neither guarantee your priorities nor guide your production.

To be effective CMP will have to be preceded by long and careful planning, detailed screening of material requests from all types of consumers, and a selective buildup of administrative people. Above all, it cannot possibly be more efficient than the people administering it.

CMP wasn't perfect during the last war, though it did work better than any other system tried. It grew out of a long, painful period of trial and error. When it was finally installed, most of the people needed for planning, screening requirements and administration had already been on the job for many months. It was a child of painful mutation, not divine creation.

CMP—Ready or Not

Its chief advantage was that it brought the maze of conflicting and confusing priorities into a single program under a single authority. It made it impossible to issue more tickets than there were seats for any given production because it matched the tickets against the seats; requirements against production. It slashed red tape.

The National Production Authority seems determined to install its new CMP on steel, aluminum and copper July 1, ready or not. Unless a lot of detail work is done between now and then, they will not be ready. A CMP in name only, or prematurely installed, could do more harm than good.

Job's Harder This Time

Under CMP the entire economy must be organized. This includes both producers and consumers. That is the only way to work out who can give what to whom and when. Right now the iron and steel section of NPA is believed to be the only one that is thoroughly organized. Aluminum and copper are still limping along with skeleton staffs.

In some ways making CMP work this time will be harder than it was before. During the last war all steel produced went to only two classes of users—direct war and essential civilian. During 1943, a typical war year, 38 pct of total steel output went to direct war uses and 62 pct went to other essential uses.

But during the present emergency no one has suggested that defense and essential civilian uses will take all of our expanded steel output. In fact there is general agreement that there will be large quantities of steel left over to be divided among regular consumers. Not all they want, not by a long sight. But still a lot.

One of NPA's toughest prob-

Turn Page

Founders' Price Formula

Washington — Formula - type price ceilings for the gray iron foundry and malleable iron castings industries are being drafted by the Office of Price Stabilization.

Representatives of the two industries pointed out in OPS meetings last week that the existing price freeze does not provide for the formula-type pricing used in their industries. They asked for a separate and flexible type of price regulation.

OPS said it hopes to come up with a regulation that would preclude the necessity for relief appeals except in extraordinary cases.

Reactivate All Magnesium Plants

Washington—With reactivation of the government's sixth and final reserve magnesium plant at Spokane, Wash., all six of the Munition Board's plants will be back into production by the middle of this year. Entire output of the Spokane plant will go to the stockpile or for allocation among key industries. The Spokane plant will be operated by the Pacific Northwest Alloys, Inc.

Quickie Strikes Are Settled

Birmingham — Two short-lived strikes in Alabama have been settled and the men will return to work immediately. One was at the Gadsden plant of Allis-Chalmers Co. and the other at the North Birmingham plant of the U. S. Pipe and Foundry Co.

UNIVERSITY OF MICHIGAN LIBRARIES

INDUSTRIAL BRIEFS

PLANT CONVERSION — REPUBLIC PLATING & PROCESSING CO., Chicago, will soon complete conversion of its plant facilities to process aluminum through sulphuric and chromic acid anodizing. The anodizing process will be available exclusively to firms engaged in defense production.

EXPANDS DIVISION—The engineering, personnel and departmental facilities of the valve division of the MINNEAPOLIS-HONEYWELL REGULATOR CO., at Philadelphia has expanded by 400 pct. The expansion program includes research, developing applications for new and existing products and for speeding production and deliveries.

ASSN. PRESIDENT — Harold W. Delzell, will serve as president of the TIRE & RIM ASSN., INC., for the next 2 years. The organization founded by tire and rim manufacturers in 1903 is the technical standardizing body of the tire and rim industries. Mr. Delzell is section manager, field engineering department of The B. F. Goodrich Co.

APPOINTS DISTRIBUTOR — The Ready Tool Co., Bridgeport, Conn., appointed the DAVID E. GROSSMAN CO., New York, as their metropolitan New York and worldwide export distributor for RED-E machine tools.

NEW LINE—TINIUS OLSEN TESTING MACHINE CO., Willow Grove, Pa., is manufacturing a new line of low cost hydraulic testing machines for simplified, accurate tension, compression, transverse and flexure testing.

NEW SITE FOR SALES — A new district sales office in Denver for servicing of chemical processing industries in Colorado, Utah, New Mexico, and Wyoming, has been opened by the PATTERSON FOUNDRY & MACHINE CO.

SUBSIDIARY FORMED—Sealol Corp., of Providence, manufacturers of "Sealol" mechanical seals for rotating shafts, has formed a subsidiary company, SEALOL MFG. CO., to be located in Keene, N. H. Research engineering and sales will continue to be handled by the organization at Providence.

ASST. DIRECTOR—Creation of a new assistant directorship at BATTELLE INSTITUTE, Columbus, Ohio, with Dr. Bruce W. Gonser named to the post, is the result of the company's enlarged program in up-to-now unexplored aspects of metallurgy and chemistry of metals.

LEASES PLANT—The government-owned Valley Stream plant has been leased by the FAIRCHILD ENGINE DIV. of Fairchild Engine & Airplane Corp. It will be used for the manufacture of jet engine components and for the production of parts and assemblies for an auxiliary power plant used in aircraft.

WINS DESIGN AWARD—Ralph A. Ostbert, president, Edward Ermold Co., New York, received a special certificate of award from DESIGN NEWS for excellence in general mechanical design of the Ermold Automatic Unpacker. Function of the machine is to automatically unpack containers from cases and cartons and deposit the containers on a conveyor line.

NEW IDEA—A plan to bring appliance distributors directly into the defense production effort, was advanced by THOR CORP., Chicago. The firm submitted to the government a proposal to convert into packaging centers for the armed forces more than 3,500,000 sq ft of warehouse facilities operated by its 77 distributors.

NEW PLANT—Ground will be broken soon for the new Mississippi plant of ROCKWELL MFG. CO. This makes a total of 15 plants across the country for this organization.

lems will be deciding who gets how much of the material that is left over after defense and essential civilian needs are allotted. One way to do it would be to allot consumers their proportionate percentage of the remaining "free" material, based on consumption during a previous period.

Apparently they do not plan to do that. Advance information that they plan to cut back steel use by auto makers, perhaps as much as 40 pct, has the makings of a real Donnybrook. Why single out autos? What about stoves and refrigerators? Or baby carriages, bobby pins or curling irons? That's what Detroit (including the United Auto Workers) is asking.

NPA Caught in Middle

There is plenty to be said on the other side. Many small manufacturers have been complaining that material restrictions are forcing them to their knees while auto production stays high.

NPA is caught in the middle. If they follow their projected course on steel cutbacks for autos (provided it is legal), they will gain about 6 million tons of finished steel per year to divide among other users. But they will have also set a precedent for bickering and high pressure from all consumers or groups who think they should get a bigger share. Not to mention the wrath of UAW.

Running CMP will be hard enough without that. Providing material for defense and essential civilian uses will be a tough job. But if NPA doesn't come up with an acceptable plan for dividing the remainder among regular customers, they might as well throw in the towel.

Urges Students Find New Alloys

State College, Pa.—Engineering students at Pennsylvania State College have been urged by John J. B. Rutherford, metallurgist of Babcock & Wilcox Tube Co., to seek new alloying elements to re-

place columbium, aluminum, nickel and molybdenum, now in short supply. Citing the threat of continuing armament for years to come, Mr. Rutherford urged the students to pioneer in finding substitute alloys.

January Steel Output Sets Monthly Record at 8,830,000 Tons

New York—January steel production was a record 8,830,000 tons, at an annual output rate of 104 million tons of ingots and steel for castings, reports the American Iron & Steel Institute. The yearly rate would top actual 1950 production by 7 million tons.

The October 1950 record was surpassed by 90,000 tons and January 1950 output by 900,000 tons. Revised December output brought total 1950 production to 96,696,769 tons, a 24 pct increase over 1949.

Study Corrosion as It Happens

Chicago — Armour Research Foundation scientists can now measure corrosion of any metal as it takes place with a new method similar to television scanning. A metal cylinder is dipped into a corrosive solution such as sea water, rotated several hundred times a minute, and scanned with a stationary probe electrode which is a plastic arm containing 11 silver wires.

Placed about .02 in. from the cylinder, the electrode detects minute electrical currents caused by corrosion. Researchers are thus able to measure and study the process as it happens. Armour has undertaken the project under the sponsorship of the National Advisory Committee for Aeronautics.

Bethlehem Plans Blast Furnace

Buffalo — Bethlehem Steel Co. will build a new blast furnace, reportedly one of the world's largest, at its Lackawanna plant. The new furnace will raise output by 500,000 tons per year, Bethlehem Steel announced.

Mining manganese the easy way: Pick it up and chuck it into a wheelbarrow.

MANGANESE—Tough Nut to Expanding Steel

DMA puts manganese ore under allocation . . . Russian exports fade to a trickle . . . India has tripled shipments . . . Vast ore find in Brazil may prove the answer—*By Bob Hatschek.*

New York—With steel capacity growing at a phenomenal rate, many raw material supply difficulties must be surmounted. One of the toughest is manganese, vital to steelmaking. Steelmen are frankly worried about it because they must import about 90 pct of their manganese needs.

Manganese Allocated

To further illustrate our manganese-short position, Defense Minerals Administration has placed strategic manganese ore under an allocation program. After Mar. 31 all ore of 35 pct or more manganese content may be delivered only in accordance with authority issued for the month by DMA. Applications for allocation authority must be filed by the fifteenth of the month preceding the month in which delivery is required.

Ore for government stockpiling or for resale is not covered but all other purchasers must use the ore as specified by DMA. They must also report inventories on hand.

The five main sources of our manganese have been Brazil, Gold Coast, India, Union of South Africa, and Russia. These countries have combined to supply the U. S. with 90 pct of imported manganese ore, or 80 pct of what industry uses.

In 1948 Russia shipped 34 pct of U. S. imports. By 1950 this dropped to a trickle, only 3.6 pct of total manganese imports.

To make up for this fading

Imports on Manganese Ore

	1948		1949		1950*	
	Tonnage	Pct of Total	Tonnage	Pct of Total	Tonnage	Pct of Total
Brazil	143,917	11.4	151,560	10.2	129,721	7.1
Gold Coast	132,681	10.5	371,314	23.9	328,099	17.9
India	213,445	17.0	429,203	27.6	633,170	34.5
Union of So. Africa	216,575	17.1	354,265	22.8	475,316	25.6
U.S.S.R.	427,229	34.0	201,409	13.0	65,563	3.6
TOTAL	1,256,597		1,544,526		1,837,950	

*Preliminary.
Total includes imports from all countries.
Source: Bureau of Mines.

source, U. S. steelmakers turned elsewhere. India has almost tripled her manganese exports to this country since 1948. Gold Coast and Union of South Africa shipments have more than doubled in the same period, while receipts from Brazil have remained about the same.

Fields in Amapa, Brazil

What seems the most optimistic note in the whole manganese supply picture is the vast ore reserve that is now being developed in the Territory of Amapa, Brazil (THE IRON AGE, Aug. 17, 1950, p. 101). Some geologists have estimated that there may be as much as 50 million tons of high-grade ore along the Amapari River. It is reported some of the ore assays as high as 68 pct manganese.

Ore can be picked up on the surface and thrown up onto trucks. A road from Macapa, at the mouth of the Amapari, up the river to the ore deposits is already under construction and a 140-mile railroad is to be built along the same route. Dredging operations are also under way in the harbor. A series of falls prevents practical river transport.

A firm, jointly owned by Bethlehem Steel Co. (49 pct.) and Industria e Comercio de Minerios, S. A. (51 pct), is doing the development work and is expected to be financed by a $35 million loan from the International Bank for Reconstruction and Development. Thus far the loan has not been officially applied for and has only been informally discussed by the World Bank.

Ore Export Deadline

Under the terms of the 50-year concession granted by the Territorial Government, export of ore must begin by Dec. 31, 1953, but, with world conditions as they are and with Bethlehem's currently accelerated expansion program, it is likely that this deadline will be more than complied with. In fact, if transportation needs are met, a possible 300,000 tons of ore can be exported by January 1953.

Need Rebuilding for Reserve Machine Tools

Used, rebuilt machinery field may get price controls and priorities . . . Washington asks cooperation . . . Dealers suggest return to OPA system of pricing—*By Ted Metaxas.*

New York—Hard and fast price controls and materials priorities will be granted to the used and rebuilt machinery field. The government will try to further vitalize an industry that has taken an increasing burden of supplying tools for civilian output and defense work while new machine tool makers were rooted by Washington inertia of plans and priorities too late.

Last week dealers and rebuilders went to a command conference in Washington under the auspices of the Machinery Dealers National Assn. Expecting to be told crisis plans for their industry, they got instead an appeal for cooperation and an opportunity to suggest acceptable price controls and priorities.

Paint, Polish Tactics

Washington stressed rebuilding capacity. In effect, rebuilders were asked to pull government chestnuts out of the fire by whipping into shape some machines that had complacently been buried in reserve pools as operable and later proved lemons.

Not many dealers are willing to enter rebuilding wholeheartedly. It is not as profitable as paint, polish, and salesmanship. And with the rush for used equipment, many dealers can empty their warehouses while even the paintbrushes get stiff.

"I'd like to report a leak!"

Larger Capacity Possible

Recently Charles A. Simmons, head of the Simmons Machine Tool Corp., Albany, N. Y., told THE IRON AGE that the rebuilding industry, lagging not too long ago, has reached near-capacity operations but that it could have almost unlimited capacity if paint and polish tactics were supplanted by the brass tacks of rebuilding.

At Washington, dealers suggested that government financing be used to amplify rebuilding facilities. Some of this spending may be beneficial. But arrangements of coming OPA-style price controls to yield a larger profit for rebuilt machines may furnish the needed profit lure to activate "hidden" rebuilding capacity.

The pledge of priorities indicates the sudden esteem in which Washington holds the rebuilding industry. Rebuilders have been hit not only by labor shortages but by unbending NPA restrictions on such important items as copper. The industry noted that it did not have regimented production line schedules, fluctuated widely, and because of the crisis boom had no realistic base periods for controls.

The used machinery field has been on the spiral staircase of inflation with prices of the used rivalling the new — when they were available. Delivery dates on new machines stretched out of sight and both traditional customers and need-converted buyers

competed for limited stocks of late used equipment.

Currently the market is in the loose grip of the general price freeze. It means that Dealer A who sold a 1940 machine for $3000 as his highest base period price is stuck with that figure. Dealer B who sold the same machine for $4000 is frozen more comfortably. Dealer A is getting double punishment, stung the first time and not able to compete favorably now.

So MDNA men recommended a return to the World War II OPA system. It would once again classify machines in year ranges, establish grades of "as is" and "rebuilt," and allow percentages of new equipment prices.

Dealers must fill the gap before new machine makers can get rolling. They will have to sharpen up their collection campaigns. But many remember that in the past war they were furtively visiting scrap metal yards to retrieve venerable machines. Things shouldn't be that tough this time.

Small Business Must Sell Productive Capacity

Material restrictions cut small businessman's profits . . . Subcontracts will save his business if he gets out and sells his productive capacity to prime contractors.—*By Bill Olson*

New York — Everyone agrees the material-short, order-hedged small businessman is in a tough spot. His howls are sending shivers up Congressional spines and his problems are political dynamite. But when the chips are down, the small businessman will get out and do his own selling job, just as he has before.

Valuable help in this selling job will come from trade associations, the Dept. of Commerce and procurement offices.

End-use restriction dates are coming up fast and material shortages are cutting profit margins. Workers are listening to the siren call of higher wages prime contractors can offer, and if lost now are irreplaceable.

Sell Productive Capacity

The small businessman's salvation is to land a subcontract from a prime contractor by peddling the one product small business has left—productive capacity.

Biggest help from Washington so far is Secretary of Defense Marshall's order to distribute contracts "as widely as possible" and his recommendation that subcontracting by prime contractors be encouraged.

Some big trade organizations are not directly trying to help small companies get subcontracts. They feel the job of getting subcontracts is the same as staying in business generally, and that they help most by supplying prompt, accurate information on government rulings, and by trying to influence top level government.

Subcontracting is widely used by the automobile and aircraft industries. During emergencies, prime contractors often desperately need the productive capacity of many small, capable plants.

Where to Get Leads

Prime contractors, as listed by the Dept. of Commerce in "Consolidated Synopsis of Contract Award Information."

Products the government wants, as listed by the Dept. of Commerce in "Consolidated Synopsis of U. S. Government Procurement Information."

Procurement Offices and Dept. of Commerce Field Headquarters, as Listed in THE IRON AGE, Jan. 4, 1951, p. 371-374.

Trade associations.

Local Chamber of Commerce.

Local military posts and bases.

First step in getting subcontract work is to locate prime contractors. These are listed weekly by the Dept. of Commerce in its "Consolidated Synopsis of Award Contracts," available at field headquarters and more than 5000 cooperating outlets. The bigger contracts are listed in THE IRON AGE each week.

Hire a Good Salesman

Trade groups advise the small businessman to hire a good salesman—to sell productive capacity instead of products.

Small producers of hard-goods items are hardest hit. Mobilization has aimed at extending basic industrial capacity.

Surveys show 67 pct of World War II prime contracts went to 100 companies who farmed out about a third of their contracts. Responsibility for maximum volume of subcontracting will probably be left to the prime contractors.

Wider use of competitive bidding on standard items to give small companies a bigger share is being considered by DPA—a reversal of the recent policy of switching most procurement to a negotiated basis for speed.

Consider Legislation

The government, in answer to criticism, may name a special assistant in charge of small business. Legislation to create a Small Business Defense Plants Corp. is being considered by the Banking Committee of the House and Senate.

Steps are being taken to help small manufacturers and prime contractors get together. One is a clinic session sponsored by the Air Force Procurement Office and the Commerce & Industry Assn. this week in New York. Prime contractors from five states will explain their needs.

Another assist is by the Chicago Assn. of Commerce & Industry and the Commerce & Industry Assn. of New York. They try to help members and non-members locate prospects, and they work with prime contractors and pro-

Prime Contractor Must Know

A prime contractor wants the following information about a prospective subcontractor:

Description of plant, facilities and location;

Items made and processes used;

Previous subcontracting experience, items produced, and contracting companies;

Estimate of available machine capacity;

Listing of type, size, age, and condition of machines;

Tolerances normally used, and closest tolerance to which you can work;

Materials used in plant;

Number and kind of employees, and qualifications of key personnel;

Current financial condition;

Nature of cost records and time used;

Shipping facilities available.

curement officers to find open machine time.

It works like this: A small firm, in a machine report, describes the capacity it has to offer. The report is cross-indexed by machine type. A prime contractor seeking open boring mill time calls the association. Firms who have reported boring mill capacity are recommended.

The New York association estimates this service in World War II helped 1500 small businesses get $82 million in original subcontract orders.

If the prime contractor is interested, he may send a field engineer to inspect the plant, methods, and cost and wage rates.

Lack of working capital does not rule out the possibility of handling subcontracts. A prime contractor may be willing to make partial payments as work progresses. A subcontractor may be able to obtain a loan under Regulation V of the Federal Reserve Board. The loan cannot be used to expand or build plants.

CONTROLS *digest*

For more details see "You and Government Controls," The Iron Age, Jan. 4, 1951, p. 365. For full text of NPA regulations write U. S. Dept. of Commerce, Division of Printing Service, Room 6225 Commerce Bldg., Washington 25, D. C.

Subject	Order	Effective Date
General		
Inventory Control	NPA Reg. 1	Sept. 18
	Interpretation 1, 2, 3	Nov. 10
Priorities System	NPA Reg. 2	Oct. 3
DO Rating	Amend. 1	Oct. 3
DO Rating	Amend. 2	Dec. 29
DO Ratings	Delegation 1, 2, 3, 4	Nov. 1, 2, 3
Priorities (Canada)	NPA Reg. 3	Nov. 8
Hoarding	NPA Notice 1	Dec. 27
Auto Prices, Wages	ESA Reg. 1	Dec. 18
Ceiling Price Regulation	CPR 1	Jan. 26
Military supplies	Supplement 1	Feb. 1
Wage Increases	CPR 2	Feb. 9
Coal Prices	CPR 3	Feb. 1
Metals		
Aluminum distribution	NPA M 5	Oct. 27
Aluminum cutback	NPA M 7 (amended)	Feb 1
	Direction 1	Nov. 28
	Direction 2	Dec. 16
	Direction 3	Dec. 27
Aluminum scrap	NPA M 22	Mar. 1
Antimony	NPA M-39	Feb. 16
Cadmium	NPA M 19	Jan. 1
Cobalt stocks	NPA M 10 (amended)	Dec. 30
Collapsible tubes	NPA M 27	Jan. 27
Columbium steels	NPA M 3	Oct. 19
Copper distribution	NPA M 11	Nov. 29
Copper use	NPA M 12 (amended)	Dec. 30
	Amend.	Feb. 19
Copper readjustment	M-12 Direction 1	Feb. 1
Copper scrap	NPA M 16 (amended)	Jan. 1
Manganese ore inventory	DMA MO-2	Mar. 31
Lead	NPA M 38	Feb. 16
Molybdenum cutback	NPA M 33 (amended)	Feb. 2
Nickel cutback	NPA M 14 (amended)	Feb. 1
Ores, metals	NPA Del. 5	Dec. 18
Steel	NPA M 1 (amended)	Feb. 15
Freight car program	Supl. 1	Oct. 26
Great Lakes ships	Supl. 2	Nov. 15
Canadian freight cars	Supl. 3	Dec. 15
Ship repair, conversion	Supl. 4	Feb. 16
Steel scrap	NPA M 20 (amended)	Jan. 29
Steel warehouses	NPA M 6 (amended)	Nov. 15
Tin inventories	NPA M 8	Jan. 9
Tinplate, terneplate	NPA M 24	Jan. 27
Metal cans	NPA M 25	Jan. 27
Tinplate closures	NPA M 27	Jan. 27
Tungsten	NPA M 30	Jan. 22
Tungsten concentrates	DMA MO-4	Feb. 15
Zinc distribution	NPA M 9	Nov. 16
Zinc cutback	NPA M 15	Jan. 15
Zinc scrap	NPA M 37	Feb. 14
Miscellaneous		
Chemicals	NPA M 32	Jan. 23
Construction	NPA M 4	Oct. 27
	Amend. 1	Oct. 13
	Amend. 2	Nov. 15
Elec. components	NPA M 17	Oct. 18
Iron, Steel Scrap Prices	OPS	Feb. 7

Industry Controls This Week:

NPA Orders:

M-1, Steel supplement 4—Sets aside 9000 tons of steel for ship repair and conversion during April, May and June.

M-4, amended—Permits some additions to commercial buildings without NPA approval.

M-12, Copper amendment — Adds additional end uses and relaxes some former restrictions. Effective Mar. 1 for List A, Apr. 1 for List B. Amendment effective Feb. 19.

M-37, Bans zinc conversion—Toll agreements on zinc scrap conversion must have NPA permission. Dealers' scrap stocks are limited, and galvanizers' dross may be used only for production of zinc dust. Effective Feb. 14.

M-38, Lead inventories—Stocks of lead and materials containing lead are limited to a 60-day supply or practical working minimum, whichever is lower. Effective Feb. 16.

M-39, Antimony — Stocks of antimony and materials containing antimony are limited to a 60-day supply or practical working minimum, whichever is lower. Effective Feb. 16.

DMA Orders:

MO-2, Manganese inventory—Provides temporary allocation program and inventory control for manganese ore of 35 pct or more metal content. Effective Mar. 31.

MO-4, Tungsten inventory—Temporarily controls delivery of all tungsten concentrates containing 40 pct or more tungsten tri-oxide. Effective Feb. 15.

Set Aside Ship Repair Steel

Washington—Supplement 4 to M-1 has been issued by National Production Authority providing for issuance of NPA directives

requiring delivery of 9000 tons of steel products for ship repair and conversion during April, May and June.

This set-aside is based on recommendations of the Maritime Commission which says shipyard inventories of plates, shapes, bars, sheet and pipe have now reached the depletion stage.

The directives will be issued by NPA calling for acceptance of certified orders from specified shipyards which are in need of the materials for repair and conversion work.

Direct Reduction Won't Arrive Overnight

Process has been worked out in pilot stage . . . But engineers believe it won't make blast furnaces obsolete . . . Freezing of ore bed overcome . . . Better blast furnaces seen.

New York—The steel industry is moving closer in its pursuit of a practical method of direct reduction of iron ore. Long the dream of steelmakers, direct reduction is now an accomplished fact in the pilot stage.

But engineers believe the days of the blast furnace are far from numbered—that it will still be a very useful and profitable melting agent even if direct reduction eventually becomes common commercial practice. They believe this will take years.

Direct reduction is merely extraction of oxygen from iron ore, relatively simple under the right conditions. To do this reducing gases must be brought into intimate contact with every grain of the ore.

Stalemate at 70 Pct

In early attempts at direct reduction atomized gas was blown in fine dispersion through the powdered ore bed making contact with all the ore and rendering it fluid. This worked fine until reduction was 70 pct completed. Then the ore bed froze and uniform contact between the gas and ore was no longer possible. Neither was the continued removal of reduced ore from the apparatus. This dead end street has delayed industry's search for a practical method of direct reduction.

In a pilot operation, H. A. Brassert & Co., New York, has overcome this problem by converting the fine ore into baked pellets. These pellets can be made from ore fines or flue dust which cannot be used in the blast furnace without sintering or pelletizing.

Since the pellets are round and porous the reducing gas can percolate through them freely. Reduction of a descending column of these pellets in a vertical shaft is done under atmospheric pressure at 850°-900°C in about 60 min. Under 42-lb pressure, reduction has been completed in as low as 8 min.

The reduced pellets, now metallic, can be used immediately as charge stock in the electric or openhearth furnace. If used as feed stock they must be briquetted to make a heavy, solid melting stock which will readily go through the slag. Briquetting of the pellets right after reduction has been technically worked out.

"I hate to disillusion the boss. He goes for this honor system in a big way—"

Summarizing the steps the process shapes up like this: (1) Baked pellets are made in the top of the reducing furnace. (2) Pellets are reduced in bottom of furnace by reducing gas such as reformed natural gas. (3) Reduced pellets are discharged and used directly as charge stock or briquetted for feed stock.

While none of these operations are new to industry, their practical combination on a commercial scale is not so simple. There are many problems still to be worked out for different ores and different uses of reduced iron. If gangue content is high, refining is complicated by excessive slag, longer melting time, higher fuel consumption. In such case it is better to remove the gangue from the ore by beneficiation before it is reduced.

Blast Furnace Improvement

There are some ores in which the silica is chemically combined with the iron oxide. Such ores are not suitable for direct reduction since the only known way to separate the gangue from the metal is by melting it in the blast furnace.

Mr. Brassert believes there is still plenty of room for improved efficiency and lower cost through improvement of the blast furnace. For example, part of the coke used in the furnace may be replaced by oil or gas, if properly applied and certain alterations in design and operating practice are made.

Such improvements may result in a 2000-ton furnace which will be smaller and cheaper than the present 1500-ton furnaces. This would mean lower pig iron costs, since natural gas and oil are cheaper fuels than coke is today.

Meanwhile, experimental work is continuing in both directions. The furnace of the future will probably result from mutation, not revolution.

Crucible Introduces Two New Alloys, Light on Critical Items

Pittsburgh—Skimping on use of critical alloying materials and containing no cobalt or columbium, two new stainless and heat-resisting alloys, CSA 39 and Crucible 422, have been introduced by Crucible Steel Co. for applications requiring high strength at hot temperatures.

Possible applications include aircraft jet engine parts and high temperature industrial equipment. CSA 39 is an iron base alloy with about 27 pct nickel, 18 pct chromium, 9 pct molybdenum, and 3 pct tungsten. Fitted for use at temperatures between 1300 and 1600°F, it does not need special hot-cold working practices for high-strength required. It can be hardened by heat treatment.

Also an iron base alloy, Crucible 422 contains 13 pct chromium, 1 pct tungsten, 1 pct molybdenum, less than 1 pct nickel, and less than ½ pct vanadium. Designed for 1000 to 1100°F temperature use, it can be hardened by normal heat treating.

NPA Amends Copper Order M-12

Washington—The National Production Authority has amended copper order M-12 to include additional prohibited end uses (List B) but temporarily relax inventory restrictions to permit more gradual adjustment to the cut-off order.

Effective date for List A remains Mar. 1 but List B is not effective until Apr. 1. Manufacturers may use up copper remaining in inventory on the cut-off dates for A and B items, provided the metal or forms are "wholly unsuitable" for items not on the lists.

This provision also applies to copper scheduled for February (List A) and March (List B) but delivered before Apr. 1 and May 1.

Because there is not enough galvanized water pipe, the order relaxes restrictions on copper tubing for home plumbing. List B adds more than 50 end items to the prohibited copper use list. Major goods banned include refrigerators, air conditioners and outboard motors.

Defense Contracts to Metalworking Industry

Selected Contracts, Week of Feb. 19, 1951

Items	Quan.	Value	Company
Generator sets	10 ea.	$ 400,000	Westinghouse Electric Corp., Washington, D. C.
Rocket assemblies	4,670,000	4,580,000	General Motors Corp., Lansing, Mich.
Compressors parts	7084	63,320	Hardie-Tynes Mfg. Co., Birmingham
Pump parts	14,176	605,068	Dravo Corp., Philadelphia
Turbine parts	5852	319,428	Dravo Corp., Philadelphia
Diesel parts	48,930	413,905	The Buda Co., Harvey, Ill.
Diesel parts	20,000	140,700	General Motors Corp., Detroit
Bullgraders	41	97,170	Bucyrus-Erie Co., Milwaukee
Spare parts	...	100,827	International Spare Parts Corp., Long Island, N. Y.
Shovel equipment	...	325,000	Thew Shovel Co., Elyria, Ohia
Automobiles	35	150,000	Ford Motor Truck Co., Dearborn
Road rollers	90	90,000	American Steel Wks., Kansas City
Scrapers	100	600,000	R. G. LeTourneau, Peoria, Ill.
Scrapers	50	300,000	Southwest Welding, Alhambra, Calif.
Trailers	50	425,000	Steel Products, Savannah
Trailers	50	425,000	Rogers Bros. Corp., Albion, Pa.
Trailers	30	900,000	Thew Shovel Co., Lorain, Ohio
Tractors	175	3,600,000	R. G. LeTourneau, Peoria, Ill.
Generators	200	1,000,000	The Buda Co., Harvey, Ill.
Generators	150	700,000	Hill Diesel Eng. Co., Lansing
Generators	325	1,600,000	Ready-Power Co., Detroit
Generators	200	740,000	Consolidated Diesel Electric Corp., Stamford, Conn.
Generators	50	300,000	Stewart & Stevenson Services, Dallas
Mortar parts	1 lot	244,879	Muncie Gear Works, Inc., Muncie, Ind.
Tooling	1 lot	212,269	La Pointe Machine Tool Co., Hudson, Mass.
Fork trucks	624	2,215,546	Clark Equipment Co., Buchanan, Mich.
Construction facilities Steel forgings	...	2,038,445	Kropp Forge Ordnance, Melvindale, Mich.

Foote Mineral Co. Describes New, Enlarged Uses of Lithium

Exton, Pa.—Several new and enlarged uses of lithium and other minerals were described here last week at the stockholders' meeting of Foote Mineral Co. H. Conrad Meyer, president, also reported record sales of $5,447,000 for 1950, a 51 pct gain over 1949.

Zirconium, which Foote is making in ductile form, was also shown. Its uses are growing, though Foote now sells a good part of its zirconium for igniting flashlight bulbs.

New uses for lithium include an improved low temperature dry cell, in greases and in ceramics. Based on past performance, company engineers expect lithium to eventually displace as much as 32,000 tons of lead a year in the ceramics industry. One big use now is in glass television tubes, in which Corning Glass uses a lithium compound in place of lead oxide. Lithium also replaces nickel in some TV tube ferrite cores.

Alcoa Votes Debt Limit Rise

Pittsburgh—Aluminum Co. of America has been authorized by its stockholders to increase its indebtedness to as much as $500 million, an increase of $300 million over the previous limit, to permit financing of the company's defense expansion program.

Roy A. Hunt, president, said net income for 1950 will be approximately $45 million, after "ample" provision for renegotiation of contracts.

Chevrolet to Make Jet Engines

Detroit—Additional jet engine facilities will be established as result of a contract between the Air Force and Chevrolet Motor Div. of General Motors. The engines will be built at a government plant at Tonawanda, N. Y., used by Chevrolet during World War II for production of Pratt & Whitney radial type engines. Production is scheduled to begin in 1952.

British Steel Industry Is Taken Over by Labor Government

Conciliatory approach aims to keep trained steelmen in the industry.

London — The government-appointed Iron & Steel Corp. of Great Britain on Feb. 15 took over 91.8 pct of England's basic iron and steel production, including all companies producing more than 5000 tons of pig-iron or steel a year.

Cost to the government so far has been $500 million for 87 companies. The value of 59 others is being argued. Sore point with the steel companies is the fact that compensation for 24 companies is reported to represent only 75 pct of the book value of assets.

Biggest problem the government faces is how to keep the men who know steel in the steel industry. Government intention is to establish a team representing the Iron & Steel Corp. and the Iron & Steel Federation representing the original owners.

By a conciliatory approach the government hopes to entice steelmen into its new corporation—now lacking in trained steelmen.

Bethlehem Grants Pay Boost

New York—An 18½¢ to 23¢ per hour wage increase granted to workers in Bethlehem Steel Co. shipyards in the East prevented a 17,000-man strike set for Feb. 28. The increase won by the Industrial Union of Marine and Shipbuilding Workers of America, C. I. O., will be retroactive to Jan. 1 if it is approved by the Wage Stabilization Board.

Pittsburgh Industry Slowed

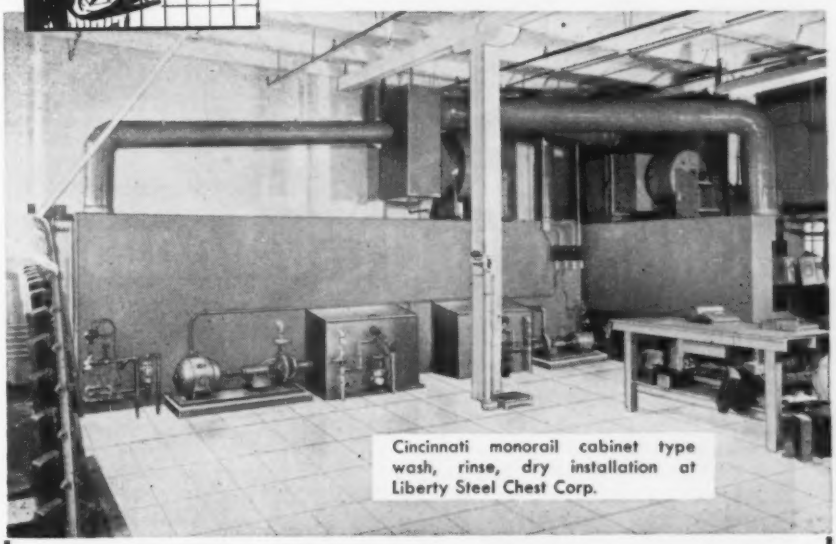
Pittsburgh—Industrial production during January fell due to lower steel operations. Because of temporary gas shortages during the cold wave, some mills were forced to reduce working schedules. Bituminous coal production and electric output rose slightly. Retail sales were at record levels.

"Excellent and Profitable"

reports Liberty Steel Chest Corporation on

Cincinnati

Cleaning Machine Features



Cincinnati monorail cabinet type wash, rinse, dry installation at Liberty Steel Chest Corp.

On each Cincinnati Cleaning or Finishing Machine installation Cincinnati engineers find that specific Cincinnati engineered features rate unusually high with the user. It's not always the same features . . . in fact it rarely is. But always, after some months operation, the user reports that certain advantages of his Cincinnati equipment are unusually well adapted to his particular problem.

The reason? Simply this: every Cincinnati installation is carefully engineered to the requirements of the user by an engineering staff which has grown up with the cleaning and finishing machine industry.

That's the reason this Liberty Steel Chest Corp. installation gets its "excellent and profitable" rating on such features as removable steam coils, tank flushing pipes and centralized controls. It's the same reason you'll find Cincinnati a solution to your cleaning or finishing problem "excellent & profitable."

New catalog of cleaning and finishing machines now available. Write for your copy.

Other installations include:

AC Spark Plug Division, G. M. C.
Chevrolet Motor Division, G. M. C.
Commercial Steel Treating Corp.
Continental Motors Corp.
Chrysler Corp.
Eaton Manufacturing Co.
Fisher Body—Ternstedt Division
Ford Motor Co.
International Harvester Co.
Kaiser-Frazer Corp.
Lincoln Mercury Division, Ford Motor Co.
Mosler Safe Co.
New Process Gear Corp.
Oldsmobile Division, G. M. C.
Plymouth Motor Corp.
Pontiac Motor Division, G. M. C.
Wm. Powell Co.
Remington Rand, Inc.
Standard Steel Spring Co.
Ternstedt Division, G. M. C.

Cincinnati ©

CLEANING & FINISHING MACHINERY COMPANY

313 HECLA STREET, IRONTON, OHIO

KINNEAR
ROLLING DOORS
Let Us Send You This
New Complete Data on
KINNEAR ROLLING DOORS
Your free copy of this brand new book brings you full, up-to-date details on all types of upward-acting doors for every need—including specifications on door sizes, headroom requirements, opening preparation, and so on. It shows you how and why the space-saving upward action of Kinnear Doors gives you highest efficiency at every opening.
In addition to the rugged, all-metal Kinnear Rolling Door—featuring the famous Kinnear-originated "curtain" of interlocking slats—it presents other Kinnear upward-acting doors. These include the sectional-type Kinnear RoL-TOP Doors (wood or all-metal), Kinnear Bi-Fold Doors (wood or all-metal), featuring two sections that "jacknife" upward and out of the way, and Kinnear Steel Rolling Fire Doors, the interlocking slat doors with special features for maximum fire safety. Kinnear Steel Rolling Grilles for protection that does not block light, air, vision, or sound are also shown. Write for this new Kinnear Catalog today!
KINNEAR
ROLLING DOORS
SAVING WAYS in DOORWAYS
The KINNEAR Mfg. Co. Factories: 1760-80 Fields Avenue, Columbus 16, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.

Steel Ingot, Casting Output At All-Time Canadian High in '50

Toronto — Canadian production of steel ingots and castings in 1950 was at the all-time record total of 3,384,131 net tons, 85.1 pct of capacity, and compares with 3,186,930 tons in 1949.

Output for 1950 included 3,298,068 tons of steel ingots and 86,063 tons of steel castings. Steel ingots and castings produced in December, 1950, amounted to 291,242 tons, a daily average of 86.2 pct of capacity, and compares with 289,488 tons or 88.5 pct for November and 263,949 tons or 78.1 pct for December, 1949.

Sheffield Steel Plans Expansion

Houston—Sheffield Steel Corp. is waiting for government approval of financing arrangements to push through its plan for a 50 pct capacity expansion of its plant here. Construction cost is set as $71,518,981. Two certificates of necessity, one for $59,275,000 for expansion of coke, pig iron, and steel products, and another, $12,243,981 for greater output of steel ingots and plates, have already been approved.

Construction plans include a new blast furnace, another open-hearth, a seamless tubing mill to make oil industry products, and blooming mill expansion. Sheffield is a subsidiary of Armco Steel.

Kaiser Aluminum Expansion

New York—Kaiser Aluminum & Chemical Corp. has announced plans for $115 million of private financing to increase productive capacity of its aluminum plants.

Of this, $79 million will be spent for construction of an aluminum reduction plant in the New Orleans area. Estimated annual capacity will be 200,000 lbs. Also included are a power project using natural gas as fuel to generate low-cost electricity, and development of bauxite deposits in Jamaica. An existing bauxite plant at Baton Rouge, La., will be expanded to increase production of alumina to 540,000 tons a year.

How to starve wood's worst enemy

An important coke oven by-product of Kaiser Steel's Fontana plant is creosote oil—an antiseptic chemical that protects wood throughout its lifetime against the ravenous appetite of the termite.

Creosote oil is just one of a dozen by-products, produced by Kaiser Steel, which are important to a wide variety of western industries.

Another is benzol, a basic ingredient of synthetic rubber, which is in critical demand today. Others, like toluol, phenol, xylol, are essential ingredients in such diverse products as explosives, paint, dyes, fabrics, enriched gasoline . . . many of them vital to our military needs.

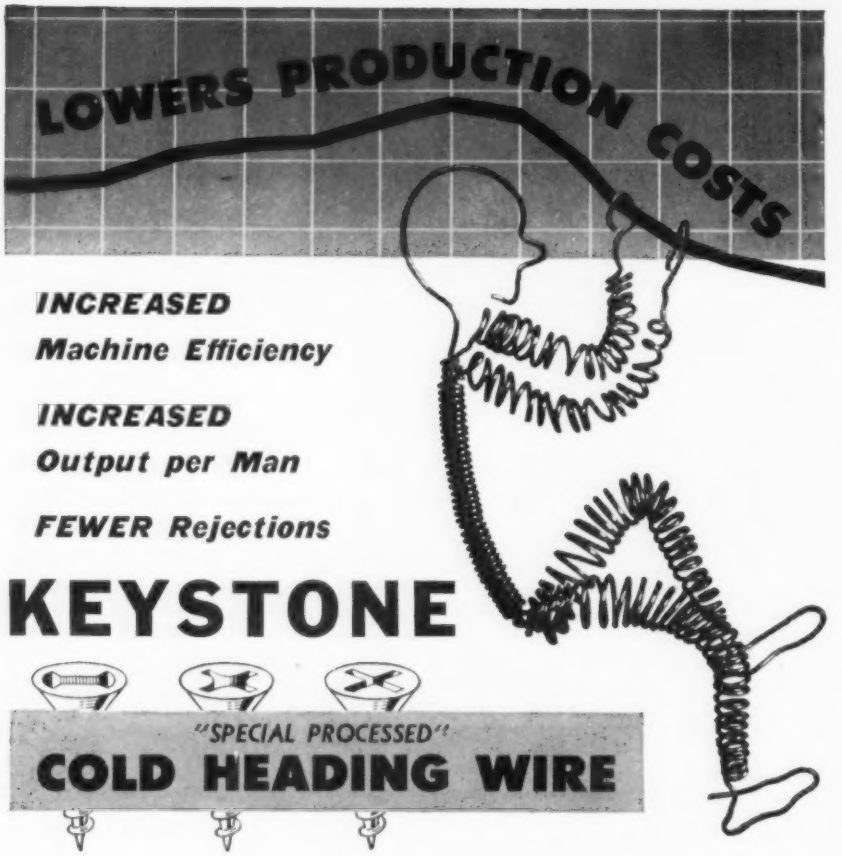
More evidence that the West Coast's only integrated *independent* steel plant is bringing more industry, more jobs, more wealth to the West!

It's good business to do business with

Kaiser Steel

built to serve the West

PROMPT, DEPENDABLE DELIVERY AT COMPETITIVE PRICES • plates • continuous weld pipe • electric weld pipe • hot rolled strip • hot rolled sheet • alloy bars carbon bars • structural shapes • cold rolled strip • cold rolled sheet • special bar sections • semi-finished steels • pig iron • coke oven by-products
For details and specifications, write: **KAISER STEEL CORPORATION, LOS ANGELES, OAKLAND, SEATTLE, PORTLAND, HOUSTON, TULSA, NEW YORK**



Many manufacturers are gaining increased efficiency in the production of recessed head screws with Keystone's "special processed" cold heading wire. This wire has uniform upsetting and forming qualities. Because of its excellent flow properties, die and plug life are often more than doubled. Production reports show less waste, fewer rejects, reduced inspection time and a higher quality finished product when this superior cold heading wire is used.

Keystone's process of *drawing after galvanizing* smooths and hardens the zinc coating, increasing its lasting qualities and its physical properties. This smooth finish, corrosion resistant Spring Wire is available in Type 2 and Type 3 heavy weight zinc coating as well as the regular weight suitable for most applications.

If your product requires "special" steel wire, please consult us.

Radioactive Isotopes Used To Study Steelmaking Chemistry

New York—Radioactive isotopes, which emit rays or particles, are being used to study the physical chemistry of steelmaking, distribution of carbon in steel, friction, diffusion of elements, and studies of some types of gages and measuring instruments, reports the American Iron & Steel Institute.

Radiocarbon 14 is being used by scientists in steel research to determine segregation habits and mechanisms by which carbon hardens steel. Other experiments are on the method of changes in metal during heat treatment, diffusion of solid iron during annealing, hardening, and recrystallization, effects on metal in high speed ball bearings.

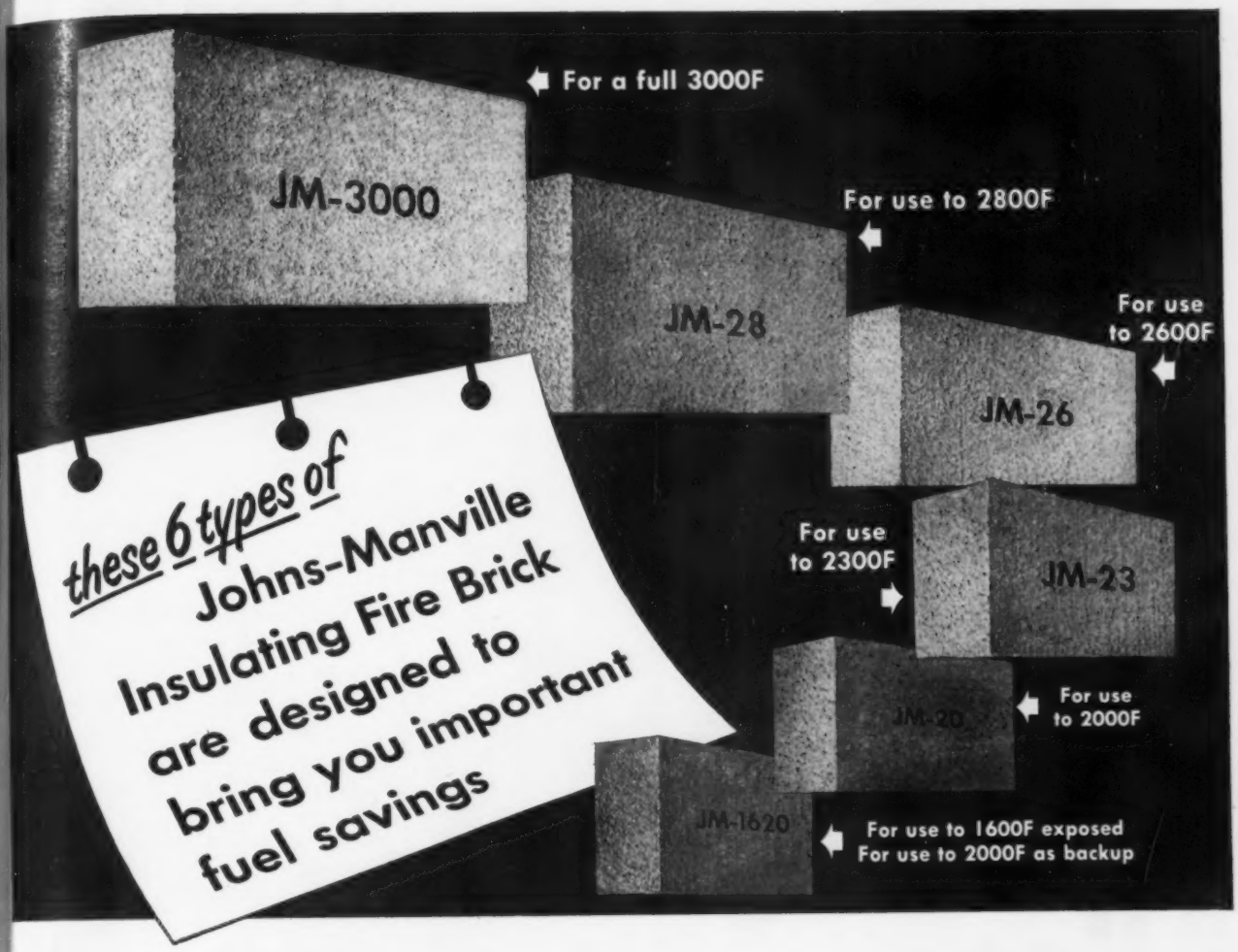
Steelworkers Less Migratory

New York—Steelworkers are proving less migratory and are holding on to their jobs. Turnover of steel industry workers in 1950 dropped more rapidly than in overall manufacturing, said the American Iron & Steel Institute on the basis of Bureau of Labor Statistics.

In the first 8 months of 1950, blast furnace, steel works, and rolling mill workers had a separation rate of only 1.6 for each 100 employees as against 3.1 for each 100 in all manufacturing. Among 92 industries surveyed, 64 rated higher in separation than iron and steel in August 1950 while 21 had lower rates.

Claim Waxes Boost Tool-Life

Racine, Wis.—Drawing of stainless steel beyond theoretical capacity, and extended life for drawing dies is possible with special blends of waxes in conventional lubricants, according to S. C. Johnson & Son, Inc. Company tests indicate waxes may serve as a replacement for copper flashing on stainless steel wire used for cold heading. Upsetting operations are also improved, the company claims.



You can make important savings in fuel by taking advantage of the quick heating characteristics of J-M Insulating Fire Brick. These light-weight brick permit a quicker rise to proper operating temperature in the furnace because of their low heat storage capacity, and low thermal conductivity. Where furnaces are being intermittently operated these are two especially important characteristics.

These same insulating materials can also be obtained in large size units called Johns-Manville Insulating *Fireblok*. This product has many advantages over the smaller size fire brick for certain types of jobs . . . from both a construction and stability standpoint. The Fireblok units can be quickly applied because they are easy to cut and fit. Fireblok insulations provide additional heat savings because they reduce the number of joints, and require less mortar for bonding.

It will pay you to let a Johns-Manville insulation engineer explain the many ways in which you can save by using these insulations in your furnaces. Just write for further information to Johns-Manville, Box 290, New York 16, N. Y.

JM PRODUCTS

	JM-1620	JM-20	JM-23	JM-26	JM-28	JM-3000
Densities, lb per cu ft	29	35	42	48	58	63-67
Transverse Strengths, psi	60	80	120	125	120	200
Cold Crushing Strengths, psi	70	115	170	190	150	400
Linear Shrinkage†, percent	0.0 at 2000 F	0.0 at 2000 F	0.3 at 2300 F	1.0 at 2600 F	4.0 at 2800 F	0.8 at 3000 F
Reversible Thermal Expansion, percent	0.5—0.6 at 2000 F	0.5—0.6 at 2000 F	0.5—0.6 at 2,000 F	0.5—0.6 at 2000 F	0.5—0.6 at 2000 F	0.5—0.6 at 2000 F
Conductivity* at Mean Temperatures						
500 F	0.77	0.97	1.51	1.92	2.00	3.10
1000 F	1.02	1.22	1.91	2.22	2.50	3.20
1500 F	1.27	1.47	2.31	2.52	3.00	3.35
2000 F	—	1.72	2.70	2.82	3.50	3.60
Recommended Service						
Back up	2000 F	2000 F	2300 F	2600 F	2800 F	3000 F
Exposed	1600 F	2000 F	2300 F	2600 F	2800 F	3000 F

†24-hr. simulative service panel test for JM-3000; 24-hr. soaking period for other brick.

*Conductivity is expressed in Btu in. per sq ft per F per hour of the designated mean temperatures.

Note: Above tests are in accordance with A.S.T.M. tentative standards.

Johns-Manville *first in* **INSULATIONS**

BARBER
COLMAN

Gear Cutters

FROM
1 3/4 D. P.

STANDARD, INVOLUTE 14½° P. A. CARRIED IN STOCK FOR QUICK DELIVERY

SPECIALS — CUTTERS FROM 1 D. P. FOR ROUGHING OR FINISHING • GANGS FOR COMBINING BOTH OPERATIONS • GROUND OR UNGROUND • STOCKING CUTTERS, STEPPED OR ALTERNATE-STEPPED TOOTH STYLE

COMPLETE GEAR CUTTING SERVICE
SEND BLUEPRINTS FOR ESTIMATES

BARBER-COLMAN COMPANY
492 ROCK STREET
ROCKFORD, ILLINOIS

BLS Plans Steel Wage Survey

Washington—A survey on the wage structure of the basic iron and steel industry has been started this month by the Bureau of Labor Statistics. A representative slice of the industry will be asked to provide detailed information on selected occupations, average hourly earnings for all workers, and some information on related wage practices and their cost.

Results of the survey should be made available about mid-1951. The latest iron and steel wage survey was made in 1938.

USS to Break Ground Mar. 1

Pittsburgh — Ground-breaking for U. S. Steel Co.'s new Fairless Works at Morrisville, Pa., will be held Mar. 1.

Participating officials will include Gov. John S. Fine, of Pennsylvania; Gov. Alfred Driscoll, of New Jersey; Calvin W. Moyer, chairman of the Bucks County, Pa., commissioners; Irving S. Olds, chairman; Benjamin F. Fairless, president, and Enders M. Voorhees, chairman of the finance committee, U. S. Steel Corp., and C. F. Hood, executive vice-president, operations, U. S. Steel Co.

Discuss Changed Market Picture

New York—Market organization changes by major firms to meet new selling conditions resulting from allocations and shortages will be discussed at the 2-day national marketing conference to be held by the American Management Assn. on Mar. 12 to 13 at the Waldorf-Astoria Hotel here.

Chesapeake Orders 2500 Cars

New York—An order for 2500 hopper cars has been received by the American Car & Foundry Co. from the Chesapeake & Ohio Railway. To have a capacity of 70 tons each, the cars will be built at American Car's Huntington, W. Va., plant. This order supplements another from Chesapeake for 3000 hopper cars.

TRAMRAIL CRANES

Indispensable for Efficient Production

Even though most parts could be moved by hand in this electrical factory, production is speeded and safety improved by employing inexpensive cranes with electric hoists

Plenty of cranes in this Diesel motor plant ease the work and boost production.

Three things which are held extremely important to modern industrial plants are achieved by the use of simple Cleveland Tramrail overhead cranes:

(1) Production is speeded
(2) Costs are cut
(3) Safety is improved

Cranes save many costly man-hours of skilled mechanics by enabling one man, in most cases, to pick up and move heavy or awkward parts that ordinarily require hard and dangerous work by several men when lifting and tugging by hand.

Even where light loads are lifted only a few times a week, it has come to be realized that the cost of Cleveland Tramrail cranes is well justified because they are a tremendous factor in the elimination of hernias, smashed hands and feet, wrenched backs and other unnecessary injuries.

Progressive plants regard overhead materials handling equipment as indispensable.

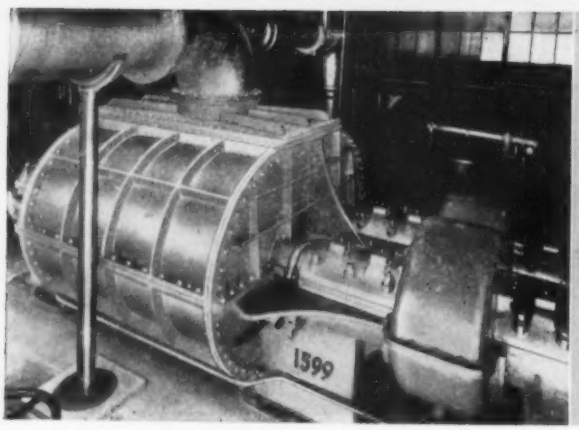
GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
4804 EAST 284TH ST., WICKLIFFE, OHIO

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

NO V-P-L WORRIES WITH R-C BLOWERS



ROTARY

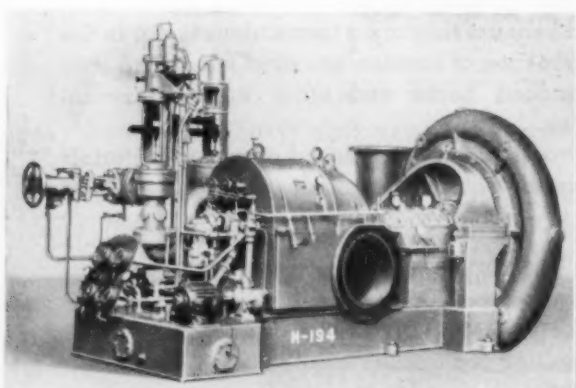
Rotary Positive Gas Exhauster in coke plant service in southern steel mill. Capacity 12,000 cfm.

Today's production urgencies call for "no-vacation" performance from blowers and other equipment to move gas and air. You must be sure of positive Volume, at the required Pressure, and at Low power cost to keep down rising expenses. The answer is Roots-Connersville Blowers with V-P-L.

You can obtain this freedom from worry by installing your choice of R-C Centrifugal or Rotary Positive equipment. This exclusive *dual-ability* gives you the choice of either type to best meet your requirements. Wide latitude in sizes, from 5 cfm to 100,000 cfm, permits selection of units with capacities close to your specific needs. Often, this flexibility saves time, cost, space, weight and power charges.

R-C engineers will gladly counsel with you on any problem of moving or measuring gas or air to keep production going.

ROOTS-CONNERSVILLE BLOWER CORPORATION
510 Ohio Avenue, Connersville, Indiana



CENTRIFUGAL

Type OIB Gas Exhauster. Capacity 19,000 cfm, driven by 332 hp steam turbine.

ROOTS-CONNERSVILLE

BLOWER BUILDERS SINCE 1854

ONE OF THE DRESSER INDUSTRIES

STEEL CONSTRUCTION NEWS

Fabricated steel inquiries this week included the following:

275 Tons, Chicago, procurement office U. S. Engineers I-beam railway bridges.

Reinforcing bar awards this week included the following:

800 Tons, Denver, Rocky Mountain Arsenal to Utah Construction Co., San Francisco.
600 Tons, Chicago, Continental Grain Co. concrete tanks to Ryan Construction Co., Omaha.
405 Tons, Brackenridge, Pa., Allegheny Ludlum Steel Corp. to U. S. Steel Supply Co.
290 Tons, Waterloo, Iowa, junior high school to Laclede Steel Co.
235 Tons, Altoona, Pa., Easterly Sewage Treatment Works to U. S. Steel Supply Co.
200 Tons, Iowa City, Iowa, children's hospital to Laclede Steel Co.
170 Tons, Arlington Heights, Ill., dial office Illinois Bell Telephone Co. to Jos. T. Ryerson and Son.

Reinforcing bar inquiries this week included the following:

900 Tons, Sterling, Ill., Northwestern Steel and Wire Co.
700 Tons, Lexington, Ky., hotel
150 Tons, Des Moines, Iowa, Solar Aircraft Co.
116 Tons, Madison, Wis., International Resident Dormitory, U. of Wisconsin.

Federated Metals, Philco, RCA Join Conservation Campaign

New York—Industry is seeking new ways to conserve critical materials. Federated Metals Div. of American Smelting & Refining Co., Philco Corp., and Radio Corp. of America joined the conservation drive last week.

Federated Metals, said to be the second largest user of tin, announced that immediate saving of 50 pct and more of tin in solder was possible. Leaner in tin content, the new products will be priced lower than the products they will replace.

Federated proposes use of silver, most available metal that can be used as a substitute, as part of the solder content, replacing tin. No working efficiency loss and lower costs are claimed. The firm also announced formation of the Metals Conservation Committee to plot out conservation methods.

Both Philco and R. C. A. announced television sets which make drastic savings in critical alloys and metals.

American Can Co. and Weirton Steel Co. had previously reported new methods to save tin on cans and solder material.

publications

Continued from Page 36

pointing out that complete surface cleaning is not usually required. *Prufcoat Laboratories, Inc.*

For free copy insert No. 7 on postcard, p. 37.

Hoisting Equipment Data

The new 92-p. general catalog No. 81 contains product illustrations, complete engineering specifications and list prices currently effective on the entire line of David Round hoisting equipment. Products shown include chain hoists, trolleys, cranes, sheaves, hoist chain, electric hoist, winches and crabs. Full data on repair parts for each of the various types of equipment is also given, along with other data and technical information of value to engineers. *David Round & Son.*

For free copy insert No. 8 on postcard, p. 37.

Fan Catalog

Design and construction specifications with complete performance data on various types of desk and stand fans, air circulators, ceiling fans, kitchen ventilators, exhaust, attic and window fans are presented in a new 32-p. illustrated catalog. Included is detailed dimensional information. *Emerson Electric Mfg. Co. Address requests to this column on company letterhead.*

Alignment Instrument

An illustrated circular describing the "Tumico King Way" alignment instrument tells how it is used for levelling and aligning new machine tools, particularly lathes, grinders, planers, etc., and is especially useful for rebuilding and rescraping used machines to perfect alignment. Pictures show six successive steps in realigning and rescraping a lathe bed. *George Scherr Co.*

For free copy insert No. 9 on postcard, p. 37.

Scaffolding Practice

The convenience, economy and other advantages of Trouble Saver sectional tubular steel scaffolding for maintenance work in industrial buildings are shown in a new 11-p. bulletin. This reference source on modern scaffolding practice in maintenance jobs gives detailed information on erection and dis-

Uniform

STRENGTH, WEIGHT DUCTILITY, MACHINABILITY, WELDABILITY, I.D. and O.D.

Can be Bent,

FLANGED, EXPANDED, TAPERED, DEPRESS BEADED, EXPAND BEADED, ROLLED, EXTERNAL UPSET, INTERNAL UPSET, SPUN CLOSED, FORGED, BEVEL FLANGED, FLATTENED, SWAGED, FLUTED.

Consult us for engineering and technical help in the selection of tubing best suited to your needs.

Design simplification, fabricability, uniformity, ductility, ease of assembly and installation are just a few of the words we use to describe the many advantages of using MICHIGAN TUBING. Whether you manufacture automobile parts, power shovels, toys or typewriters, MICHIGAN TUBING can give you a better product at lower cost.

A Quality Product,

can be worked in your plant or prefabricated by MICHIGAN.

RESISTANCE WELDED STEEL TUBING

Michigan STEEL TUBE PRODUCTS CO.

THE OLDEST NAME IN ELECTRIC

33 Years in the Business

9450 BUFFALO STREET • DETROIT 12, MICHIGAN

FACTORIES: DETROIT, MICHIGAN • SHELBY, OHIO

DISTRIBUTORS: Steel Sales Corp., Detroit, Chicago, St. Louis, Milwaukee, Indianapolis and Minneapolis—Miller Steel Co., Inc., Hillside, N. J.—C. L. Hyland, Dayton, Ohio—Dirks & Company, Portland, Oregon—James J. Shannon, Milton, Mass.—Service Steel Co., Los Angeles, Calif.—American Tubular & Steel Products Co., Pittsburgh, Pa.—Strong, Carlisle & Hammond Co., Cleveland, Ohio.—A. J. Fitzgibbons Co., Buffalo, N. Y.

publications

Continued

mantling of basic units, building up complete assemblies, available frames and components and a variety of actual applications of a special nature. Illustrations cover many on-the-job applications ranging from small assemblies to elaborate erections covering entire buildings. *Patent Scaffolding Co., Inc.*

For free copy insert No. 10 on postcard, p. 37.

Plastic Coatings

Use of vinyl plastic coatings for the control of corrosion on exteriors of steel, concrete, brick, formed block and plywood structures, and as a tank lining, is detailed in a new illustrated bulletin. Specific properties are given and a chemical resistance chart is included, as well as information concerning application. Coatings described are of thermoplastic resin base and inert, noncontaminating enough for food processing, yet tough enough for use on railroad tank cars or sea-going barges. *Casey & Case Coating Co. Address requests to this column on company letterhead.*

Packaged Air Control

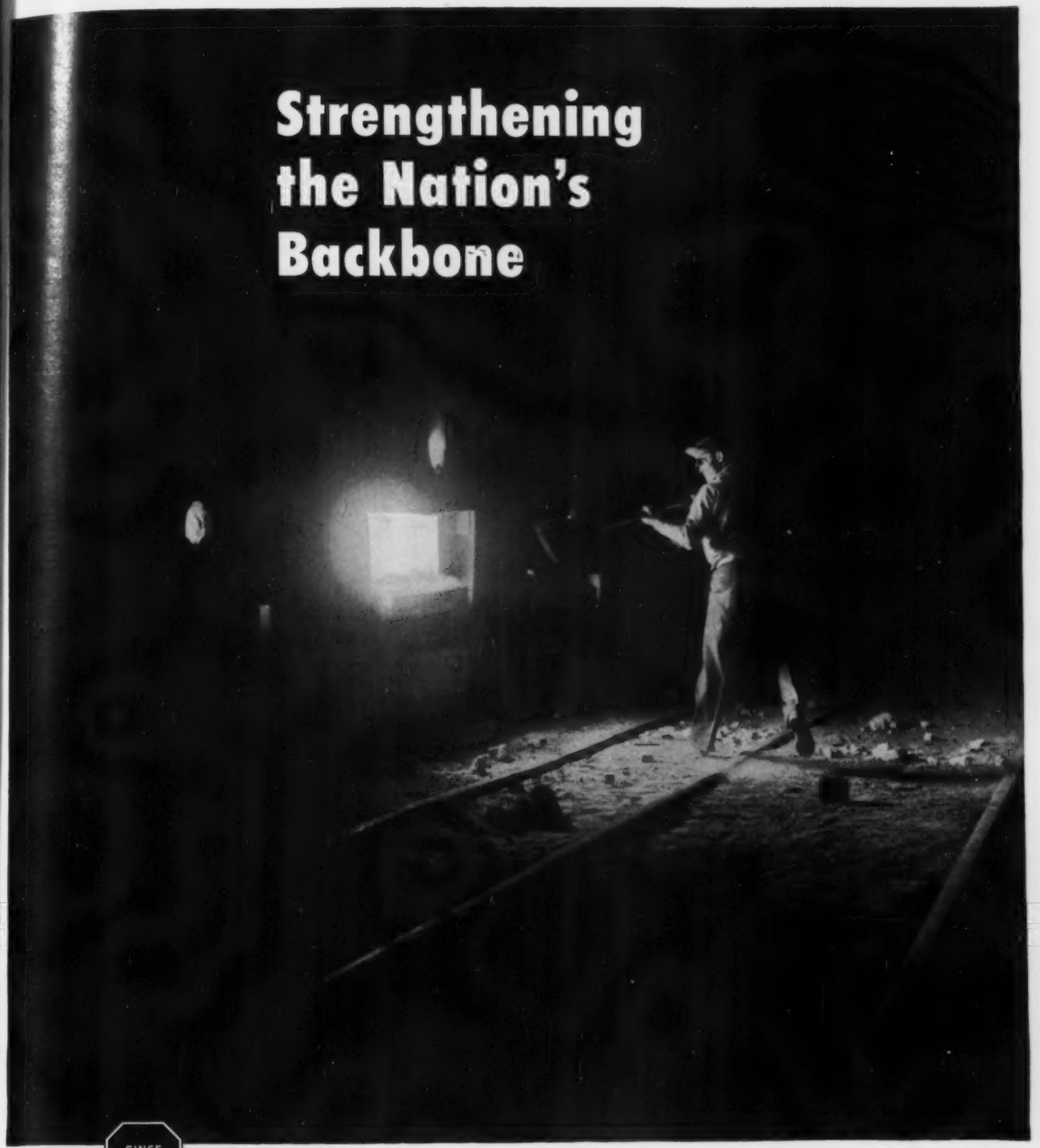
The Bellows Electroaire valve—a complete packaged air control unit, is described in a new 6-p. bulletin. Consisting of four-way directional valve, and independent speed regulators for control of piston rod speed of air cylinders in either or both directions, the unit is shown to embody unique low voltage solenoid controls guaranteed against burnout. Detailed technical data and wiring diagrams are also shown. *Bellows Co.*

For free copy insert No. 11 on postcard, p. 37.

Graphite for Parting

How colloidal graphite dispersions are used profitably in the metalworking and other industries is shown in a new 6-p. bulletin. Details given are of such specific applications as the parting of sintered metal clutch plates from each other, the separation of ingots from molds, and the removal of

Strengthening the Nation's Backbone



SINCE
GRANITE CITY STEEL
1878

Middle America, backbone of the nation, gets part of its strength from Granite City Steel—main suppliers of quality steel to this area since 1878.

You can depend on Granite City Steel to keep pace with Progress —to continue to be Steel Headquarters for Middle America.

OUR PRODUCTS

Ingots • Cold Rolled Coils • Strongbarn Galvanized Roofing and Siding (Patented) Cold Rolled Sheets • Electrical Sheets Tin Mill Products • Electrolytic Tin Plate Porcelain Enameling Sheets • Fabricated Products • Hi-Strength Corruform

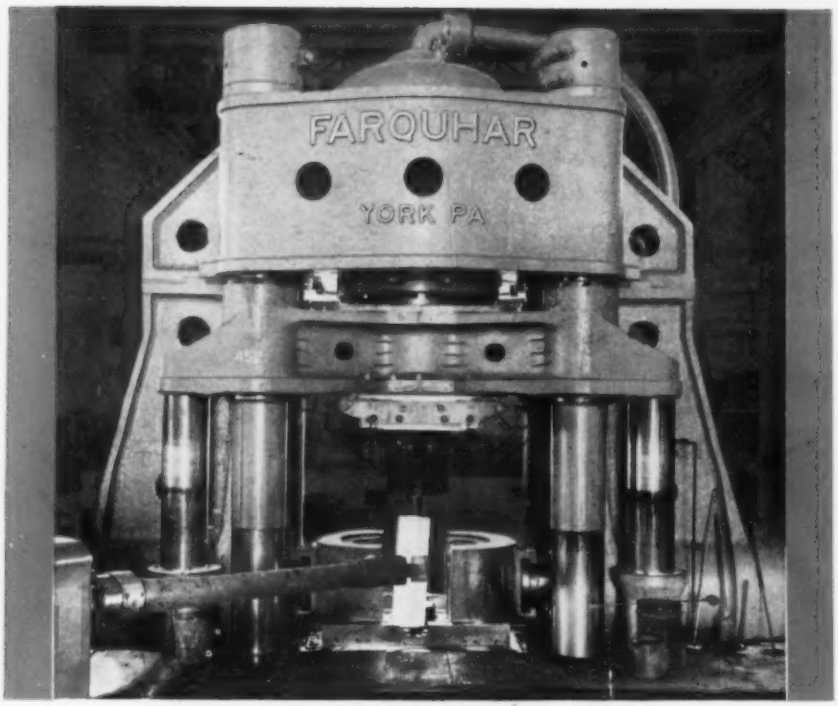
GENERAL OFFICE and PLANT

Granite City, Illinois

DISTRICT SALES OFFICES:

Dallas, Texas
Kansas City, Missouri
Memphis, Tennessee
Minneapolis, Minnesota
Moline, Illinois
St. Louis, Missouri

GRANITE CITY STEEL COMPANY, Granite City, Illinois



FARQUHAR HYDRAULIC PRESS

turns out better forgings *faster* for Cameron Iron Works

This Giant 5000-ton Farquhar Hydraulic Press has a big job to do at the Cameron Iron Works, of Houston, Texas—and it's doing it!

Cameron needed faster and better production of tubing head spools which are used in the oil industry for capping wells. These parts had formerly been produced from steel castings. By using the built-to-specification Farquhar Press to turn out 800-lb. forgings of the spools instead, Cameron speeded up production, saved time and labor.

Advantages of forgings by the Farquhar Press over the castings are: Cheaper to produce . . . Free from porosity . . . Uniform in physical properties . . . Controlled in grain structure. Cameron gets higher quality at lower costs for this operation—still can convert the press for other production jobs in the future.

Farquhar Presses Cut Your Costs

Just one more example of cost-cutting Farquhar performance in heavy production. Farquhar Presses are built for the job . . . presses that assure faster production due to rapid advance and return of the ram . . . greater accuracy because of the extra guides on moving platen . . . easy, smooth operation with finger-tip controls . . . longer die life due to positive control of speed and pressure on the die . . . long, dependable service with minimum maintenance cost!

Farquhar engineers are ready to help solve whatever production problem you may have. Give them a call.

Send for Free Catalog showing Farquhar Hydraulic Presses in all sizes and capacities for all types of industry. Write to: A. B. FARQUHAR Co., *Hydraulic Press Division*, 1503 Duke St., York, Pa.

GET THE DETAILS on how our Deferred Payment Plan helps you pay for your Farquhar Hydraulic Press out of the savings it produces!

Farquhar
HYDRAULIC PRESSES
for Bending • Forming • Forcing • Straightening • Assembling • Drawing
Extruding • Joggling • Forging • and other Metal-working Operations

publications

Continued

glass forms from molding machines. The folder explains that this lubricant is unaffected by heat up to 3500°F in inert atmospheres, and is widely used to prevent sticking, corrosion, galling, and freezing of parts. *Acheson Colloids Corp.*

For free copy insert No. 12 on postcard, p. 37.

Charts to Aid Production

Isometrics at work in the plant today is the subject of a new 10-p. explanatory booklet showing how the individual plant can make maximum production per worker a reality. It tells how Isometrics show the untrained worker, by means of illustrated charts, the correct rotation of assembled parts, eliminating special training and supervisory assistance. The method is adaptable to all types of industry, particularly the radio, aircraft and automotive fields. *Isometric Co.*

For free copy insert No. 13 on postcard, p. 37.

Die Cushion Catalog

Die cushions for mechanical presses are described in a new 20-p. booklet cataloging the entire Danly die cushion line with complete size, capacity and dimensional data. A valuable feature of the booklet is a series of cushion selection charts covering a wide range of sizes and types of die cushions. All are shown in photos and engineering drawings. *Danly Machine Specialties, Inc.*

For free copy insert No. 14 on postcard, p. 37.

Tiny Tantalum Capacitors

A series of sub-miniature tantalum capacitors, notable for stability over wide ranges of time and temperature, is announced in a new bulletin telling how, for its capacity ratings, this is the smallest electrolytic capacitor ever known—excluding connection leads, it occupies less than 1/10 cu in. Nine standard capacitors are listed, ranging from 30 mfd at 6 v dc to 3.5 mfd at 75 v dc. *Fansteel Metallurgical Corp.*

For free copy insert No. 15 on postcard, p. 37.

Resume Your Reading on Page 37

Conserve that Stainless!

If you possess any stainless steel of doubtful parentage, now is the time to identify it. Most stainless alloying elements are scarce—some have reached the critical stage.

Any mixed supplies of stainless steels you have in stock have become precious, and well worth sorting out.

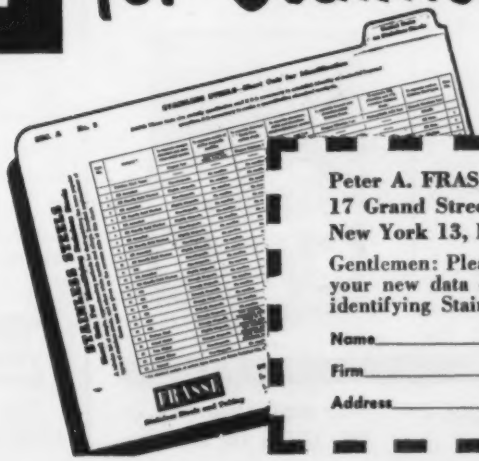
To help you, Frasse engineering service has recently revised and reissued our Data Chart, Sec. A No. 3—which describes 10 simple methods for separating stainless from carbon and alloy steels, nickel stainless from moly grades, straight chrome from chrome nickel grades, etc. A detailed explanation of each testing method is also included.

The chart is printed on durable cardboard stock, regular file card size, and can be filed, tacked on a wall, or slipped under glass for speedy reference.

A copy of this useful chart may be obtained by using the coupon below. Mail it today! *Peter A. FRASSE and Co., Inc., 17 Grand St., New York 13, N. Y. (Walker 5-2200) • 3911 Wissahickon Ave., Philadelphia 29, Pa. (Baldwin 9-9900) • 50 Exchange St., Buffalo 3, N. Y. (Washington 2000) • 157 Richmond Ave., Syracuse 4, N. Y. (Syracuse 3-4123) • Jersey City • Hartford • Rochester • Baltimore*

FRASSE for Stainless Steels

- Bars
- Sheets
- Strip
- Plates
- Angles
- Wire
- Tubing
- Pipe
- Fittings



Peter A. FRASSE and Co., Inc. 1-IA
17 Grand Street
New York 13, N. Y.

Gentlemen: Please send me, without obligation, a copy of your new data chart, Sec. A No. 3—listing methods for identifying Stainless Steels.

Name_____ Title_____

Firm_____

Address_____

METAL TURNINGS TO METAL CHIPS...
One of four American #3800 Crushers installed in a General Motors plant for the processing of metal turnings.

...FOR AMERICA'S BLUE CHIP COMPANIES with

American METAL TURNINGS Crushers

WHY an AMERICAN installation makes Dollars and Sense:

These cost-conscious companies have long-since learned that American-crushed metal turnings quickly recover an initial American Crusher investment in these important ways:

$2 to $3 Extra Profit Per Ton: With higher scrap values for metal chips over ordinary machine shop turnings, a daily crushing capacity of only 2 tons will produce *$1200.00 per year in extra profits.*

Up to 80% Less Space: Reduction to metal chips solves many expensive handling and storage problems, and allows easy briquetting.

30-50 Gallons Per Ton Cutting-Oil Recovery: An important reclamation that adds new profits with an American Crusher installation.

PROMINENT AMERICAN CRUSHER USERS

The users of American Metal Turnings Crushers read like a "Who's Who" of American Industry. Included are such names as:

GENERAL MOTORS • FORD
TIMKEN • ALLIS-CHALMERS
GENERAL ELECTRIC • BUDD
WHEEL • CHRYSLER.

Write for Bulletin "METAL TURNINGS CRUSHERS"

American

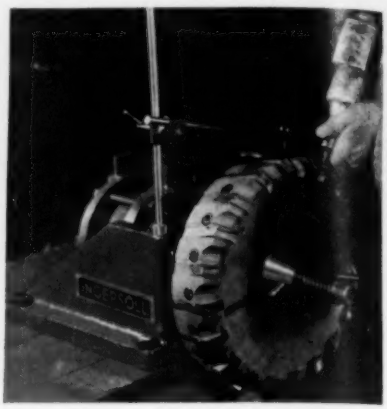
Originators and Manufacturers of Ring Crushers and Pulverizers

1439 MACKLIND AVE.
ST. LOUIS 10, MO.

production ideas

Continued from Page 40

opened and closed by an air-pressure valve as operator indexes the cutter. Pointer mounted on vise is used in setting blades to the same height. Arbors for cutters with



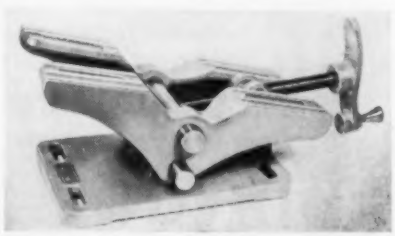
1½ and 2½ in. diam bores are standard equipment. Arbors for other bore diameters are available as special equipment. *Ingersoll Milling Machine Co.*

For more data insert No. 34 on postcard, p. 37.

Tilting Motor Base

Accommodates all sizes and types of fractional motors up to 1 hp.

Adjustable in width and length to accommodate fractional hp motors, a lightweight tilting motor



base also acts as a belt tightener when used with variable speed drives and for easy belt changing on cone step pulleys. A handle screw adjustment provides exact speed control and changes while the machine is in use. The base is 5½ x 7 in., shipping weight 10 lb. *Lovejoy Flexible Coupling Co.*

For more data insert No. 35 on postcard, p. 37.

Dispatch Carrier

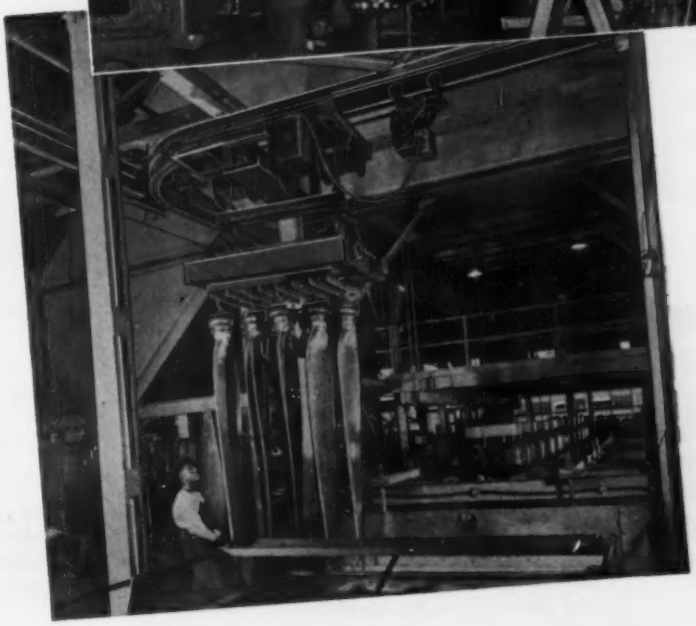
Gear head motor can turn the bucket one complete revolution.

The carrier illustrated was originally designed for delivery of core

INCREASE PRODUCTION NOW...

WITH Present Plant Manpower

Present Plant Space

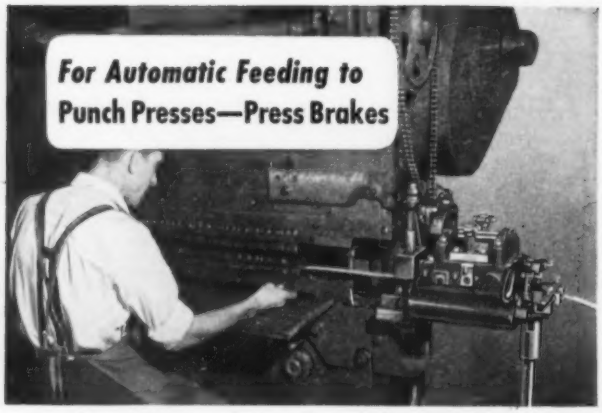


The next time you walk through your plant, cast your eyes toward the ceiling and you'll realize that there is mighty valuable space that can be put to work—without increasing your plant capacities and without increasing plant manpower.

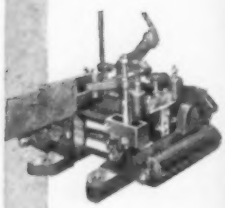
An American MonoRail engineer will show you how you can use your "air rights". With thousands of overhead handling installations from which to draw, each with many money and time saving advantages, it will pay you to investigate American MonoRail Overhead Handling Systems. Send for bulletin C-1.

THE AMERICAN MONORAIL COMPANY

13103 ATHENS AVENUE CLEVELAND 7, OHIO



A press brake equipped with Wittek No. 6-L Automatic Roll Feed



You Can't Beat WITTEK

Wittek Roll Feeds are made in standard models to meet every requirement in the automatic feeding of strip stock to punch presses or press brakes. The distinguishing feature is their simple and economical method of operation which does away with complicated parts thereby assuring *speed* and *accuracy* in the feeding of various kinds and thicknesses of material.

Wittek Adjustable Reel Stands are designed as companion units to Wittek Automatic Roll Feeds and are available in seven different models to handle *ALL* types of coiled strip stock and wire being fed to punch presses or similar production machinery.

Special units of Wittek Automatic Roll Feeds and Adjustable Reel Stands are engineered to meet unusual requirements.

Write for complete descriptive literature

WITTEK Manufacturing Co.
4329 W. 24th Place
Chicago 23, Ill.

Automatic ROLL FEEDS AND REEL STANDS

EF

Easier HEAT TREATMENT of LARGE, HEAVY CASTINGS

● The gantry crane shown with this battery of EF batch type furnaces picks up castings from a receiving platform — loads them into the furnaces — removes them after heating — lowers them into the quench — removes them after quenching and places them on an unloading platform.

Our wide experience in all phases of heat treating and related material handling problems, puts us in a preferred position to solve most any ferrous or non-ferrous annealing or heat treating problem. We solicit your inquiries.

THE ELECTRIC FURNACE CO.
GAS FIRED, OIL FIRED AND ELECTRIC FURNACES FOR ANY PROCESS, PRODUCT OR PRODUCTION
Salem - Ohio

production ideas

Continued

sand to storage hoppers at core makers benches and core blowing machines. It consists of a standard MonoTractor for horizontal propulsion on the MonoRail tracks, a

twin hook Electro Lift hoist and a special bucket mounted so that the gear head motor can turn it one complete revolution. Control devices can perform selective stopping and starting at stations. *American MonoRail Co.*

For more data insert No. 36 on postcard, p. 37.

Channel Marking Machine

Stamps identification on aluminum or other metal channel sections.

A channel section is marked by pulling the handle of the marker from left to right. This action rolls a deep, clear-cut mark in the channel without distorting the metal. A spring returns the mandrel to

position for the next marking. The roll die can be made with lettering engraved on the solid roll. For part numbers or other changing identification marks, interchangeable

type setups can be provided. The base or mandrel section is machined to suit individual channel shapes. *M. E. Cunningham Co.*

For more data insert No. 37 on postcard, p. 37.

Adjustable Shelving

Steel-wood shelving features sturdiness, strength, safety.

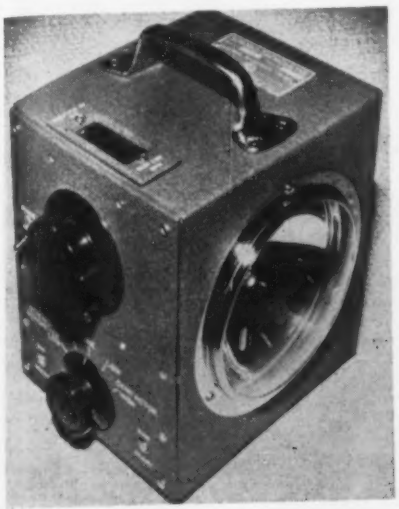
No bolts are used to attach the hard wood shelving to the steel uprights. A pressed steel clip attaches each shelf to the steel upright giving maximum in adjustability and strength to each wood shelf. Steel-wood shelving is available 3 ft wide x 1 or 1½ ft deep x 7 ft high. *Lyons Metal Products, Inc.*

For more data insert No. 38 on postcard, p. 37.

Stroboscopic Tachometer

Measures speeds without physical connection with rotating equipment.

The fundamental range of flashing speed of the Strobotac is 600 to



14,400 per min. These speeds can be read directly from a dial calibrated in rpm. By using multiples of the flashing speed, the range of measurement can be extended to about 100,000 rpm. By multiple images, speeds below 600 rpm can be measured. The Strobotac operates on 105 to 125 v, 50/60 cycles, consumes approximately 35 w. It measures 7½ x 8¾ x 9⅞ in. overall. *Electronic Measurements Co.*

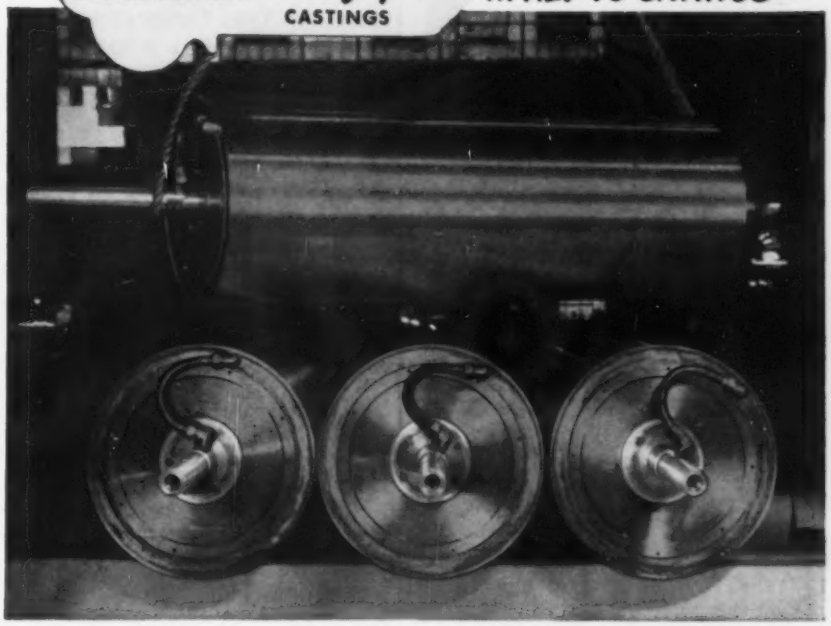
For more data insert No. 39 on postcard, p. 37.

Multi-Use Primer

Rust inhibiting, for use on ferrous or aluminum surfaces.

A new rust inhibiting primer is basically a rust inhibiting synthetic primer that reduces with

SHENANGO-PENN *Centrifugal* CASTINGS ... KEY TO SAVINGS



Bronze cooling drums, used in making imitation leather. Each drum is double cylinder, with brazed-in bronze spacers and heads. Journals are steel. Coolant is circulated between cylinders by means of flexible hose from journal.

TOUGH... COMPLEX... OR SIMPLE JOB

Shenango qualities pay off!

FOR example, take the rather complex cooling drums shown here. Each drum consists of one cylinder within another, both centrifugally cast by Shenango's advanced technique. This in itself means exceptional strength to resist stresses and pressure . . . and fine, pressure-dense grain for avoidance of porosity and prolonged wear-life. It also means relief from sand inclusions, blow holes and other often-hidden defects.

Add to this Shenango's complete, modern machining facilities and you'll appreciate how simple parts or complex assemblies can be precision finished here to your exact specifications . . . at minimum cost!

FOR FREE BULLETINS, for specific data on ferrous or non-ferrous work, large or small, semi or finish machined, write to:

SHENANGO-PENN MOLD COMPANY
589 West Third St. • Dover, Ohio
Executive Offices: Pittsburgh, Pa.

SHENANGO PENN

ALL RED BRONZES • MANGANESE BRONZES • ALUMINUM BRONZES
MONEL METAL • NI-RESIST • MEEHANITE® METAL

AS THE Goddess of Liberty

symbolizes the independence of America and the uplifted torch indicates enlightenment to the world, the sole mission of this independent ball plant is to produce precision balls of unexcelled surface finish and accuracy for bearing manufacturers and users. We do not make bearings, we manufacture balls only.

Universal Balls are manufactured in a new plant, under ideal working conditions, with modern equipment. We invite you to inspect our facilities and personally verify this fact. Bearing balls of uniform quality and extremely fine tolerances are the result of fine equipment and utmost operational care. The art of making balls to within ten millionths of an inch is the outcome of long years of study and scientific research.

Universal balls have been used by the largest, most meticulous bearing manufacturers in the U. S. A. and abroad since 1942.

For bearing balls with the long-lasting qualities of perfect surface finish, sphericity and size accuracy, use Universal Balls.

UNIVERSAL BALL CO.

PRECISION BALLS OF CHROME AND STAINLESS STEEL, BRONZE AND SPECIAL METALS.

WILLOW GROVE, Montgomery County, Pa.
Telephone, Willow Grove 1200

production ideas

Continued

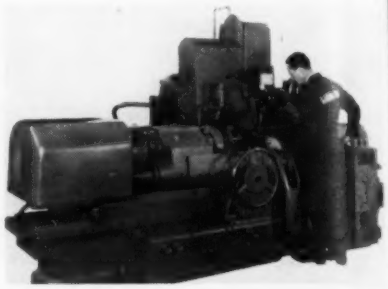
Toluol or Xylol for spraying or dipping. The product is said to bake or air-dry with equal facility and can be cured simultaneously with its top coat in a one-bake operation. A 15-min. baking operation at 300°F is sufficient to thoroughly dry Multi-Primer. Ten minutes of air-drying is adequate to allow handling. Available in gray, red, yellow and black. *James B. Sipe & Co.*

For more data insert No. 40 on postcard, p. 37.

Crank Pin Grinder

For production grinding crank pins of 4, 6, or 8 cylinder crankshafts.

Refinements to speed production and insure dependable operation built into this improved model include lubrication to the carriage and wheelbase ways from a separate reservoir with pump and filter; a safety pressure switch to prevent operation of the machine unless pressure exists in the system. A new handfeed for the carriage positions the crankshaft laterally as the grinding wheel moves toward the work, permitting even grinding on each side of the crankshaft sidewall. Speeds of the hydraulic traverse are adjustable at the front of the machine. There are separate



controls for positioning speed of the carriage and for right hand and left hand cushioning speeds. Microsphere spindle bearings are lubricated by pressure. An overhead wheel dresser obtainable to speed the operating cycle is hydraulically operated and permits dressing the wheel without changing the work setup. A variable

Turn to Page 115

NO MORE WORRY

Sheet steel packages (domestic shipments). 8 gauge Gerrard Steel Straps secure the waterproof paper and hold steel sheets in firm, tight packages.

when you tie with GERRARD STEEL STRAPPING

● You don't have to worry about "condition on arrival" when you tie your packages with Gerrard Steel Strapping. It clinches tightly, grips evenly, holds firmly despite rough handling, and keeps packages in first class condition.

You don't have to worry about the size, shape or weight of packages. Gerrard Steel Strapping is flexible enough to tie small cartons, yet strong enough to reinforce large crates, bind heavy pallets or secure bulky machinery to flat cars.

You don't have to worry about high strapping costs. Gerrard Steel Strapping costs about 40% less than any other type of metal reinforcement. And the Gerrard method of strapping effects other economies in plant operations. A Gerrard engineer will gladly give you the full story. His services are available free of charge. Write for a free copy of the *Blue Book of Packaging.*

Gerrard Steel Strapping Company
4705 S. Richmond St., Chicago 32, Illinois

USS **GERRARD**
ROUND STEEL STRAPPING
UNITED STATES STEEL

production ideas

Continued from Page 112

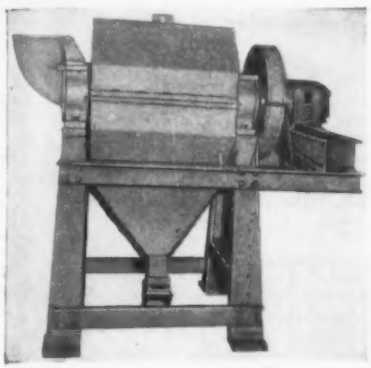
speed motor maintains correct surface speed of the wheel regardless of wheel diameter. *Landis Tool Co.*

For more data insert No. 41 on postcard, p. 37.

Metal Separator

Reclaims valuable metal from skimmings, slags and dross.

This dry process separator recovers waste metal at once and makes it available for immediate resmelting; eliminates the accumulations of skimming over a



period of time; and produces a high percentage of metal recoveries. The operating features are: No heat—no water; automatic operation; low maintenance cost; and no skilled operator needed. The metal separator is available in two sizes. *Peerless Metal Separator Co.*

For more data insert No. 42 on postcard, p. 37.

Fork Lift Truck

Will tier three pallets high; lifts 117 in. from floor-to-forks.

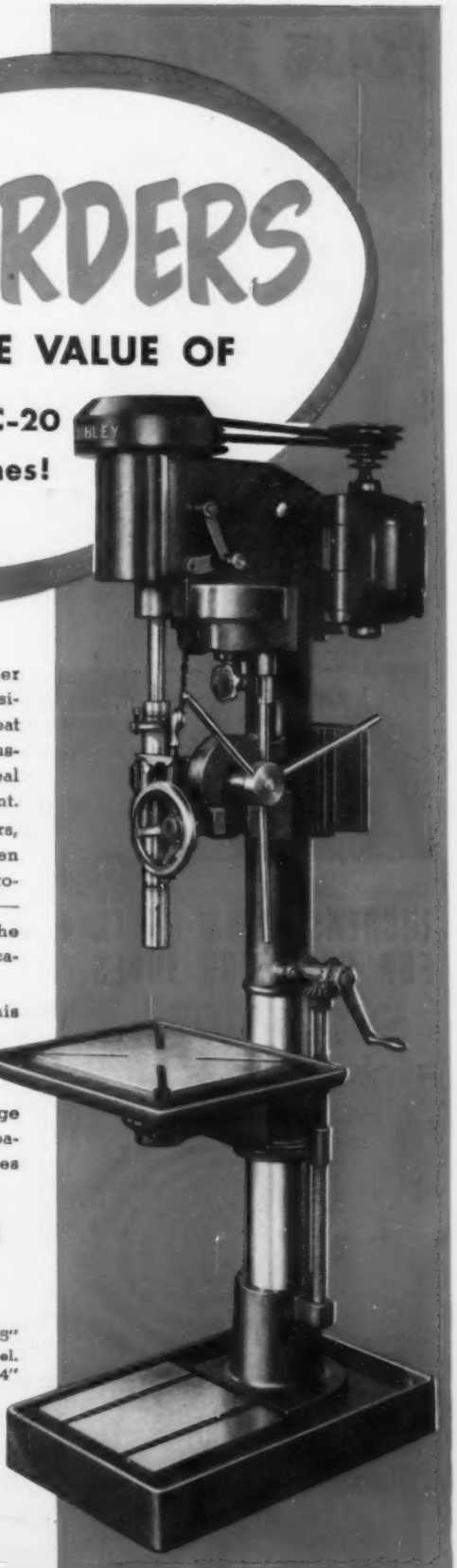
A Tier-Master fork lift truck with telescoping uprights is 72 in. high with the mast lowered; overall height of the mast extended is 142 in. The truck is designed to tier three pallets high and still easily move in and out of trucks, through low doors and other restricted clearance areas without transferring loads from one fork truck to another. Roller chain lift mechanism allows unobstructed view between the uprights and lifts at a speed of more than 45 fpm. Lev-R-Matic drive controls allow forward or back operation at the

Turn to Page 117

RE-ORDERS

PROVE THE VALUE OF

Sibley's Model C-20 Drilling Machines!



Nothing demonstrates customer satisfaction more than repeat business—and judging from the repeat orders for the Model C-20, customers have found it to be a real cost and time saving investment.

On the market now for two years, this 20" swing machine has been tested in toolrooms and on production in hundreds of plants—and customers acclaim it as the finest drilling machine for its capacity they've ever operated.

There are good reasons for this acceptance! Operation is so effortless—geared power feeds are selected by turning a knob; spindle speeds range from 65 to 1360 R.P.M.; its capacity of 1¼" in mild steel handles a large variety of drilling jobs.

4 TO 5 WEEKS DELIVERY!
No lengthy waiting for your order.

OTHER SIBLEY MODELS
Model E-25 medium weight with 25" swing and ¾" capacity in mild steel. Heavier Models D-24 and D-28 in 24" or 28" swing with 1¾" capacity.

Don't Delay —write for specifications today!

SIBLEY
MACHINE & FOUNDRY CORP.
47 EAST TUTT STREET
SOUTH BEND 23, INDIANA

SIBLEY MACHINE & FOUNDRY CORP.
47 E. Tutt St., South Bend 23, Indiana
Send Catalog No. 67
Name _____ Title _____
Company _____
Address _____
City _____ State _____

FAST, SAFE PACKING...
FOR MILITARY MATERIEL

Now available for efficient, cost-saving packing of shells, cartridges, fuses and other military materiel, are American pre-assembled interlocking partitions made to meet government specifications. Wire for prices on your requirements. Volume production facilities.

American PARTITION CORPORATION
3043 N. 30TH ST. UPTOWN 3-5100 MILWAUKEE 10, WIS.
Eastern Plant and Sales Office: Bound Brook, New Jersey
Bound Brook 9-3100
Western Representative: Seaman Heymes Co. — Exbrook 2-3244
Merchants Exchange Building, San Francisco 4, Calif.
Midwest Sales Representative:
767-73 Milwaukee Ave., Chicago 22, Ill. — Monroe 6-1962

MUNDT
PERFORATED METALS

The few perforations illustrated are indicative of the wide variety of our line—we can *perforate almost any size perforation in any kind of metal or material required.* Send us your specifications.

Sixty-seven years of manufacturing perforated metals for every conceivable purpose assure satisfaction.

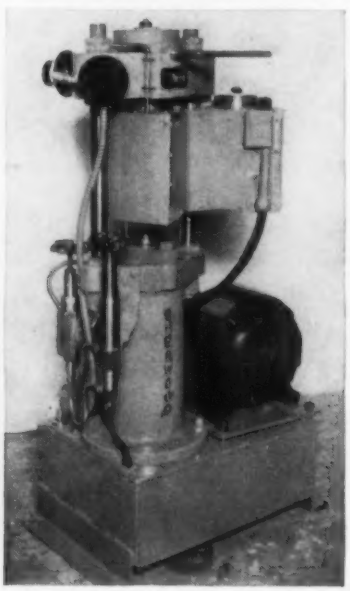
Write for New Catalog of Patterns

TIN, STEEL, COPPER, ALUMINUM, BRONZE, BRASS, ZINC, ANY METAL, ANY PURPOSE

CHARLES MUNDT & SONS
80 FAIRMOUNT AVE. JERSEY CITY, N. J.

INCREASE WAX PATTERN PRODUCTION FOR PRECISION INVESTMENT CASTING

SHERWOOD
MODEL WP-12
WAX INJECTION PRESS



- Produces wax or plastic patterns for precision investment casting in large volume.
- Temperature range to 400°F.
- Pressure range to 1500 p.s.i.
- Large capacity—4 cylinders each containing 67 cubic inches.

Send for descriptive circular and informative booklet "Modern Precision Investment Casting!"

ALEXANDER SAUNDERS & CO.
95 Bedford St. WAtkins 4-8880 New York, N. Y.

TO YOUR SPECIFICATIONS
GRIFFIN
COLD ROLLED STRIP STEEL

½" to 19" Wide
.002 to .500 Thick

Desired quality for forming and drawing.

Consult with us on your next cold rolled strip steel requirements.

SALES AGENTS:
WM. H. LEONORI & CO., Inc., 30 Howard St., New York 13, N. Y.; D. S. WEGENER, 519 Book Building, Detroit 26, Mich.; CHARLES L. LEWIS, 1355 Market St., San Francisco 3, Cal.; J. J. LAMBERT, 323 Huntington Ave., Buffalo, N. Y.;

CENTRAL STEEL & WIRE COMPANY
13400 North Mt. Elliott, Detroit 12, Mich.
3000 West 51st St., Chicago 80, Ill.
Box 148 Annex Station, Cincinnati 14, Ohio

GRIFFIN
MANUFACTURING CO. • ERIE, PA.

production ideas

Continued from Page 115

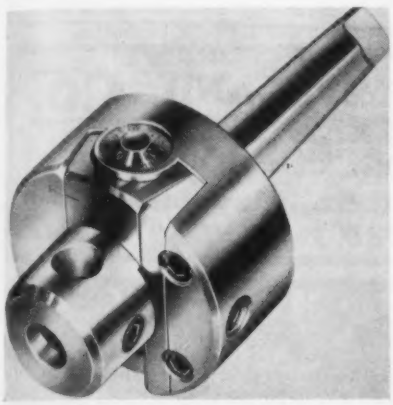
push or pull of a single lever without shifting gears. The Tier-Master is a stand-up type, 2000-lb capacity fork lift truck powered by a three-cylinder air-cooled, gas operated Mobilift engine. *Mobilift Corp.*

For more data insert No. 43 on postcard, p. 37.

Boring Heads

Safety smooth, round contour and micrometer offset adjustment.

Five new offset boring heads are of lightweight design. The smallest has a 2¾ in. diam, ½ in. bar capacity and weighs 3 lb. The largest has 6½ in. diam, 1½ in. bar capacity and weighs 24 lb. Bar off-



set of the new series ranges from ⅝ to 1½ in. All heads are machined from solid stock and ground after hardening. The tool blocks have the extension nose, but the nose on the new model is round. Boring tools may be inserted in the head either vertically or horizontally. *Flynn Mfg. Co.*

For more data insert No. 44 on postcard, p. 37.

Demineralizer

Features new direct reading meter.

With the direct reading meter, anyone can tell the purity of the water at any time and maintain a constant purity check on the flow of demineralized water. For convenience, the instrument is calibrated in parts per million and also in ohms electrical resistance. The demineralizer is complete with a needle type regulating valve, a drain valve and a base for bench mounting. *Barnstead Still & Sterilizer Co.*

For more data insert No. 45 on postcard, p. 37.

Resume Your Reading on Page 41

Important Points to Consider...
on run-out tables too...
LOVEJOY
L-R FLEXIBLE COUPLINGS
On run-out tables . . . or wherever a *better* flexible coupling is needed, Lovejoy Flexible Couplings will "fill the bill." Actual service records show that these couplings have been in continuous service on run-out tables without maintenance *for as long as three years.* They most effectually counteract misalignment, vibration, back lash and surge by simplest construction. Free-floating load cushions are suspended between strong metal jaws ...and there are no shut-downs for changing cushions, which will last two to five years. No lubrication ever required. To eliminate break-downs and shut-downs due to flexible couplings, use Lovejoy Flexible Couplings.
WRITE FOR CATALOG AND HANDY, QUICK-FINDING SELECTOR CHARTS
LOVEJOY FLEXIBLE COUPLING CO.
3066 WEST LAKE STREET
CHICAGO 44, ILLINOIS

COME SOUTH TO
LOUISIANA

- Mild Climate
- Fine Rail, Water & Air Transportation
- Good Living Conditions
- Cooperative Labor
- Abundant Natural Resources

Existing plant facilities available for prime or sub contracts in many lines of defense work.

For further information, address—

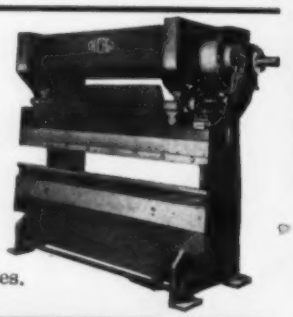
Department of
COMMERCE AND INDUSTRY
State of Louisiana
Baton Rouge, La.

Mary Evelyn Dickerson, Executive Director

CHICAGO STEEL PRESS BRAKES

43 Standard Sizes

DIES Punching and Forming for All Makes and Sizes of Press Brakes.



DREIS & KRUMP MANUFACTURING COMPANY
7430 S. Loomis Blvd., Chicago 36, Ill.

CHICAGO STEEL BINDING BRAKES BOX and PAN BRAKES PRESS BRAKES

FOR ECONOMY—
FOR ACCURACY—
FOR DEPENDABILITY—

Specify WHITEHEAD Stampings
Suppliers to American industry for 46 years.
WRITE FOR YOUR CATALOG!

WHITEHEAD STAMPING CO.
1669 W. LAFAYETTE BLVD., DETROIT 16, MICH.
EST. 1903

A. J. BOYNTON AND CO.
CONSULTING ENGINEERS
109 N. Wabash Ave., Chicago 2, Ill.

GOSS and DE LEEUW
MULTIPLE SPINDLE
CHUCKING MACHINES
Four, Five, Six, Eight Spindles • Work and Tool Rotating Type
GOSS & DE LEEUW MACHINE CO., KENSINGTON, CONN.

Tabor
ABRASIVE CUTOFF MACHINES
. . . for bar stock and shapes

3-H.P. line—wet and dry cutting, bevel or rt. angle. Capacity: ¾" solids; 2" tubing; 2" x 6" lt. sheet formed sections; ½" x 1" flats.

10-H.P. line—wet cutting, rt. angle or bevel. Capacity: 2½" solids; 3" x ⅜" angles; 4½" tubing; ¾" x 3" flats. Write for literature. Specify shape, size and material to be cut.

TABOR MANUFACTURING CO.
6222 Tacony Street, Phila. 35, Pa.

THE CLEVELAND STEEL TOOL CO.
Punches, Dies, Chisels, Rivet Sets
660 E. 82d St., Cleveland, O.
If it's RIVETED you KNOW it's safe

MATHEWS CONVEYERS

• Since 1905. Engineers and manufacturers of Conveyers and Conveyer Systems for the Metal-Working Industries. Three modern plants. Engineering Offices in All Principal Cities. There's an Engineering Sales Office near you.

MC

MATHEWS CONVEYER CO.
ELLWOOD CITY . . . PENNSYLVANIA
SAN CARLOS, CALIF. . PORT HOPE, ONTARIO, CAN.

OHIO LOCOMOTIVE CRANES
GASOLINE • DIESEL
ELECTRIC • STEAM
25 TO 40 TON CAPACITY

THE OHIO LOCOMOTIVE CRANE CO.
BUCYRUS, OHIO

Cutting Off Machines for Sawing All Kinds of Metals

THE ESPEN-LUCAS MACHINE WORKS
FRONT AND GIRARD AVE., PHILADELPHIA, PENNA.

LELAND-GIFFORD DRILLING MACHINES

- Individually Motored Spindles
- Single or Multiple Heads
- Hand, Power or Hydraulic Feed
- High Speed Tapping Attachments

LELAND-GIFFORD COMPANY, WORCESTER, MASSACHUSETTS

IRON AGE *markets and prices*

market briefs and bulletins

not so shining hope—With heavy material restrictions on the way for civilian auto production, many in Detroit have elected plastics as the shining hope for continued high production. That was the solution: replacement of critical metals by plastics. Last week Bakelite Co., a division of Union Carbide & Carbon Corp., a major producer of plastic raw materials, dashed cold water on hot hopes. Phenolic laminates and a glass resin using styrene polyester, possible metals substitutes, are either in short supply or will be put to military uses.

a slight thaw—Beginning Feb. 15, NPA will take applications at field offices for construction of retail stores, warehouses, and other commercial buildings frozen as of Jan. 15. Approvals hinge on proof that buildings are necessary for defense, public health or safety, or to prevent hardship. With an NPA okay, the Federal Reserve Board amended Reg. X, effective Feb. 15, to require 50 pct of cost on commercial construction.

steel plate set-asides—An indication of the gathering speed of the defense effort is the increase in set-asides of carbon and alloy plates scheduled for May 1. The present 15 pct set-aside called for by the amended steel order (M-1) will be raised to 20 pct. Changes in military requirements, however, cut the percentage reserve for alloy sheet bars from 35 to 5 pct in the recent amendment, effective Feb. 15.

British steel hike—Rising coal and coke prices to the tune of up to $30 million increased costs to the British steel industry will definitely necessitate higher steel prices in England, according to the Minister of Supply. The new schedule is now being worked out on the higher basis but the new prices are still expected to be well below those prevalent on the Continent.

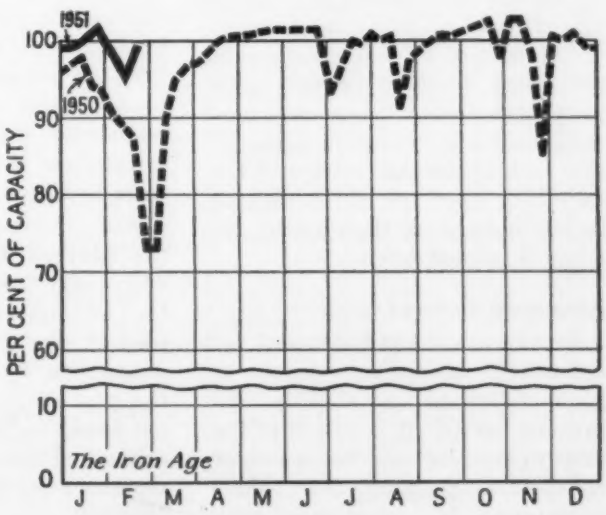
defense orders—Some of the biggest defense orders so far placed require a long period of tooling up before the goods start to roll. This partly explains why machine tool backlogs are growing while manufacturers are being pinched by material cutbacks and lack of defense contracts.

so you have trouble—A manufacturer of kitchen equipment placed an order for stainless sheet last year and was promised delivery in February. Later they were told they would have to be pushed back into the fourth quarter of 1951. Then came the M-14 order and they had to be taken off the books. They use almost all stainless steel and so far have no defense orders.

tungsten from down under—The U. S. and U. K. governments have placed long-term contracts with King Island Scheelite, Ltd., an Australian producer, for $15,680,000 worth of strategic tungsten. The American contract will run for 7 years, the British for 5.

steel for expansion—One mill reports that steel expansion is taking as much structural shapes as they are contributing to the freight car program. While this is not believed general for the industry, it does point up the fact that it takes steel to make steel.

Steel Operations**



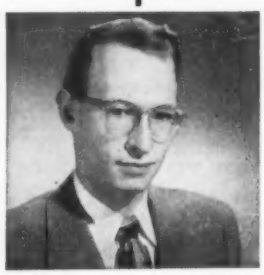
District Operating Rates—Per Cent of Capacity**

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	West	Buffalo	Cleveland	Detroit	Wheeling	South	Ohio River	St. Louis	East	Aggregate
Feb. 11	98.0*	100.5	92.0*	98.0	101.7	104.0	82.5*	108.0*	100.0	104.0	88.0	95.1	112.6	98.5
Feb. 18	97.0	101.5	88.0	99.0	103.5	104.0	96.0	109.0	99.0	104.0	86.0	87.2	112.6	99.5

* Revised.
** Beginning Jan. 1, 1951, operations are based on an annual capacity of 104,229,650 net tons.

nonferrous metals

outlook and market activities



by R.Hatschek

NONFERROUS METALS PRICES

	Feb. 14	Feb. 15	Feb. 16	Feb. 17	Feb. 19	Feb. 20
Copper, electro, Conn.	24.50	24.50	24.50	24.50	24.50	24.50
Copper, Lake delivered	24.625	24.625	24.625	24.625	24.625	24.625
Tin, Straits, New York	$1.83	$1.83	$1.83	....	$1.83	$1.83*
Zinc, East St. Louis	17.50	17.50	17.50	17.50	17.50	17.50
Lead, St. Louis	16.80	16.80	16.80	16.80	16.80	16.80

Note: Quotations are going prices.

*Tentative.

New York—Scrap metals prices are ranging all over the lot. In anticipation of the freeze some people in the trade ran up their prices so that they might charge higher prices legally and, because of the highly competitive nature of the business, the freeze is not working well. Dealers and consumers are expecting Washington to set ceiling prices at any time.

Demand for secondary brass and bronze is only fair because of the lack of DO rated orders in the brass industry. Brass mills have been forced to severely curtail their operations because of this lack of defense work and the fact that they are not permitted to use enough of their metal for other than war work.

Aluminum Demand High

On the other hand, demand for secondary aluminum ingot is good following a slightly depressed period. It is felt that the drop in demand was the result of consumers trimming down their inventories in compliance with government regulations. DO orders on aluminum are more frequent than on brass and bronze.

National Production Authority has amended order M-12 on copper. The amendment added about 50 more items on the end-use list for which copper is prohibited and it also eased the inventory provisions of the original order. NPA has also placed lead and antimony under control in orders M-38 and M-39. More complete details will be found in the *News of Industry* section.

Boost Alumina Output

It is reported that the Shullsburg, Wis., zinc-lead mine of Calumet and Hecla Consolidated Copper Co. is now producing about 650 tons of ore a day. About 1200-ton-per-day production is expected from the mine by the middle of the year. The added metal from this mine will be welcome to a zinc-starved industry.

Also increasing production is the East St. Louis works of the Aluminum Ore Co., an Aluminum Co. of America subsidiary. At present the plant has increased production by about 50 pct and the goal set for Mar. 15 is a 100 pct boost in output. The cost of expanding this plant, which makes alumina from bauxite, is set at over $500,000.

The Emergency Lead Committee has filed a petition to the U. S. Tariff Commission for investigation and revision of the lead import duty, now 2⅛¢ per lb. The committee's recommendation is a tariff which slides inversely with the domestic price of lead, that is the lower the price, the higher the tariff.

They specifically suggest these rates: When lead is 17¢ per lb and over, the duty would be 1 1/16¢ on metal and ¾¢ on lead in ore; when lead is 12¢ to 17¢, duty would be 2⅛¢ on metal and 1½¢ on lead in ore; when lead is less than 12¢, duty would be 3 3/16¢ on metal and 2¼¢ on lead in ore. This, it is claimed, would give the domestic producers of lead a more favorable position in time of slack demand and would permit greater imports in times of excessive demand as at present.

Imports Top Home Output

The combination of high demand and devaluated currency in Mexico and the sterling countries contributed to imports in 1950 that were greater than domestic production. It was pointed out that this was the first time in history that this has happened. The ratio was 550,000 tons imported to 425,000 tons produced by domestic lead mines.

The Singapore tin market was still above New York levels last week but was coming down gradually. It is expected that the current lack of orders from the U. S. will soon bring Far East prices down to a point where imports will again be possible.

MILL PRODUCTS

(Cents per lb, unless otherwise noted)

Aluminum

(Base 30,000 lb, f.o.b. ship. pt. frt. allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32¢; 52S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 75S-O, 75S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 52S, 35.6¢; 24S-O, 24S-OAL, 34.1¢; 75S-O, 75S-OAL, 41.8¢; 0.032 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 52S, 39.8¢; 24S-O, 24S-OAL, 41.7¢; 75S-O, 75S-OAL, 52.2¢.

Plate: ¼ in. and heavier: 2S, 3S-F, 28.3¢ 4S-F, 30.2¢; 52S-F, 31.8¢; 61S-O, 30.8¢; 24S-O, 24S-OAL, 32.4¢; 75S-O, 75S-OAL, 38.8¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.2¢ to 74.5¢; 12 to 14, 36.9¢ to 89¢; 24 to 26, 39.6¢ to $1.16; 36 to 38, 47.2¢ to $1.70.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 38.5¢; cold-finished, 0.375 to 3 in., 2S-F, 3S-F, 40.5¢ to 35¢.

Screw Machine Stock: Rounds, 11S-T3, ⅛ to 11/32 in., 53.5¢ to 42¢; ⅜ to 1½ in., 41.5¢ to 39¢; 1 9/16 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.051 to 0.374 in., 2S, 39.5¢ to 29¢; 52S, 48¢ to 35¢; 56S, 51¢ to 42¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 75S-T6, 84¢ to 67.5¢.

Extruded Tubing, Rounds: 63S-T5, OD in in.: 1¼ to 2, 37¢ to 54¢; 2 to 4, 33.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 43.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., $1.142; 96 in., $1.522; 120 in., $1.902; 144 in., $2.284. Gage 0.024 in. x 28 in., 72 in., $1.379; 96 in., $1.839; 120 in., $2.299; 144 in., $2.759. Coiled Sheet: 0.019 in. x 28 in., 28.2¢ per lb.; 0.024 in. x 28 in., 26.9¢ per lb.

Magnesium

(F.o.b. mill, freight allowed)

Sheet and Plate: FS1-O, ¼ in. 63¢; 3/16 in. 65¢; ⅛ in. 67¢; B & S Gage 10, 68¢; 12, 72¢; 14, 78¢; 16, 85¢; 18, 93¢; 20, $1.05; 22, $1.27; 24, $1.67. Specification grade higher. Base: 10,000 lb.

Extruded Round Rod: M, diam in., ¼ to 0.311 in., 74¢; ½ to ¾ in., 57.5¢; 1¼ to 1.749 in., 53¢; 2½ to 5 in., 48.5¢. Other alloys higher. Base: Up to ¾ in. diam, 10,000 lb; ¾ to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes, Rectangles: M. In weight per ft, for perimeters less than size indicated, 0.10 to 0.11 lb, 3.5 in., 62.3¢; 0.22 to 0.25 lb, 5.9 in., 59.3¢; 0.50 to 0.59 lb, 8.6 in., 56.7¢; 1.8 to 2.59 lb, 19.5 in., 53.8¢; 4 to 6 lb, 28 in., 49¢. Other alloys higher. Base, in weight per ft of shape: Up to ½ lb, 10,000 lb; ½ to 1.80 lb, 20,000 lb; 1.80 lb and heavier, 30,000 lb.

Extruded Round Tubing: M, wall thickness, outside diam, in., 0.049 to 0.057, ¼ in. to 5/16, $1.40; 5/16 to ¾, $1.26; ½ to ⅞, 93¢; 1 to 2 in., 76¢; 0.165 to 0.219, ⅝ to ¾, 61¢; 1 to 2 in., 57¢; 3 to 4 in., 56¢. Other alloys higher. Base, OD in in.: Up to 1½ in., 10,000 lb; 1½ in. to 3 in., 20,000 lb; 3 in. and larger, 30,000 lb.

Titanium

(10,000 lb base, f.o.b. mill)

Commercially pure and alloy grades: Sheet and strip, HR or CR, $15; Plate, HR, $12; Wire, rolled and/or drawn, $10; Bar, HR or forged, $6; Forgings, $6.

Nickel and Monel

(Base prices, f.o.b. mill)

	"A" Nickel	Monel
Sheets, cold-rolled	71½	57
Strip, cold-rolled	77½	60
Rods and bars	67½	55
Angles, hot-rolled	67½	55
Plates	69½	56
Seamless tubes	100½	90
Shot and blocks	....	50

Copper, Brass, Bronze

(Freight prepaid on 200 lb includes duty)

	Sheets	Rods	Extruded Shapes
Copper	41.03	....	40.63
Copper, h-r	....	36.88	....
Copper, drawn	....	38.18	....
Low brass	39.15	38.84	....
Yellow brass	38.28	37.97	....
Red brass	40.14	39.83	....
Naval brass	43.08	38.61	38.07
Leaded brass	....	32.63	36.70
Com'l bronze	41.13	40.82	....
Mang. bronze	45.96	40.65	41.41
Phos. bronze	60.20	60.45	....
Muntz metal	40.43	36.74	37.99
Ni silver, 10 pct	49.27	51.49	....
Arch. bronze	....	....	35.11

PRIMARY METALS

(Cents per lb, unless otherwise noted)

Aluminum ingot, 99+%, 10,000 lb, freight allowed	19.00
Aluminum pig	18.00
Antimony, American, Laredo, Tex.	42.00
Beryllium copper, 3.75-4.25% Be	$1.56
Beryllium aluminum 5% Be, Dollars per lb contained Be	$69.00
Bismuth, ton lots	$2.25
Cadmium, del'd	$2.55
Cobalt, 97-99% (per lb)	$2.10 to $2.17
Copper, electro, Conn. Valley	24.50
Copper, Lake, delivered	24.625
Gold, U. S. Treas., dollars per oz.	$35.00
Indium, 99.8%, dollars per troy oz.	$2.25
Iridium, dollars per troy oz.	$200
Lead, St. Louis	16.80
Lead, New York	17.00
Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb	24.50
Magnesium, sticks, 100 to 500 lb	42.00 to 44.00
Mercury, dollars per 76-lb flask, f.o.b. New York	$216-$220
Nickel, electro, f.o.b. New York	53.55
Nickel oxide sinter, f.o.b. Copper Cliff, Ont., contained nickel	46.75
Palladium, dollars per troy oz.	$24.00
Platinum, dollars per troy oz.	$90 to $93
Silver, New York, cents per oz.	90.16
Tin, New York	$1.83
Titanium, sponge	$5.00
Zinc, East St. Louis	17.50
Zinc, New York	18.22
Zirconium copper, 50 pct	$6.20

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5-5 ingot	
No. 115	29.00
No. 120	28.50
No. 123	28.00
80-10-10 ingot	
No. 305	35.00
No. 315	32.00
88-10-2 ingot	
No. 210	46.25
No. 215	43.25
No. 245	36.00
Yellow ingot	
No. 405	25.00
Manganese bronze	
No. 421	29.75

Aluminum Ingot

(Cents per lb, 30,000 lb lots)

95-5 aluminum-silicon alloys	
0.30 copper, max.	33.25-34.25
0.60 copper, max.	33.00-34.00
Piston alloys (No. 122 type)	30.50-31.00
No. 12 alum. (No. 2 grade)	30.00-30.50
108 alloy	30.25-30.75
195 alloy	31.25-31.75
13 alloy	33.50-34.00
ASX-679	30.50-31.00

Steel deoxidizing aluminum, notch-bar granulated or shot

Grade 1—95-97½%	32.00-32.50
Grade 2—92-95%	30.25-30.75
Grade 3—90-92%	29.25-29.75
Grade 4—85-90%	28.75-29.25

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, freight allowed, 500 lb lots)

Copper	
Cast, oval, 15 in. or longer	39⅛
Electrodeposited	33⅜
Rolled, oval, straight, delivered	38⅞
Forged ball anodes	43
Brass, 80-20	
Cast, oval, 15 in. or longer	34¾
Zinc, oval	26½
Ball anodes	25½
Nickel 99 pct plus	
Cast	70.50
Rolled, depolarized	71.50
Cadmium	$2.80
Silver 999 fine, rolled, 100 oz lots, per troy oz, f.o.b. Bridgeport, Conn.	79½

Chemicals

(Cents per lb, f.o.b. shipping points)

Copper cyanide, 100 lb drum	52.15
Copper sulfate, 99.5 crystals, bbl.	12.85
Nickel salts, single or double, 4-100 lb bags, frt. allowed	20½
Nickel chloride, 375 lb drum	27½
Silver syanide, 100 oz lots, per oz.	67¼
Sodium cyanide, 96 pct domestic 200 lb drums	19.25
Zinc cyanide, 100 lb drums	45.85

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add ½¢ per lb for shipments of 20,000 to 40,000 lb; add 1¢ for more than 40,000 lb)

	Heavy	Turnings
Copper	23	22¼
Yellow Brass	20½	18¾
Red brass	21½	20¾
Comm. bronze	21¾	21
Mang. bronze	19½	18⅝
Brass rod ends	19⅞	....

Custom Smelters' Scrap

(Cents per pound, carload lots, delivered to refinery)

No. 1 copper wire	21.50
No. 2 copper wire	20.00
Light copper	19.00
Refinery brass	19.50*
Radiators	15.00

*Dry copper content.

Ingot Makers' Scrap

(Cents per pound, carload lots, delivered to producer)

No. 1 copper wire	23.00
No. 2 copper wire	22.00
Light copper	21.00
No. 1 composition	22.00
No. 1 comp. turnings	21.50
Rolled brass	18.50
Brass pipe	20.50
Radiators	17.50
Heavy yellow brass	17.00
Aluminum	
Mixed old cast	18½—19
Mixed new clips	20½
Mixed turnings, dry	18½
Pots and pans	18½—19
Low copper	21½—22

Dealers' Scrap

(Dealers' buying prices, f.o.b. New York in cents per pound)

Copper and Brass

No. 1 heavy copper and wire	21½
No. 2 heavy copper and wire	20
Light copper	19
New type shell cuttings	19
Auto radiators (unsweated)	15½—16
No. 1 composition	19 —19½
No. 1 composition turnings	18½—19
Clean red car boxes	17½—18
Cocks and faucets	17½—18
Mixed heavy yellow brass	14½—15
Old rolled brass	15½—16
Brass pipe	18½—19
New soft brass clippings	17½—18
Brass rod ends	16½—17
No. 1 brass rod turnings	16 —16½

Aluminum

Alum. pistons and struts	12 —13
Aluminum crankcases	15 —16
2S aluminum clippings	18½—19½
Old sheet and utensils	15 —16
Borings and turnings	12½—13
Misc. cast aluminum	15 —16
Dural clips (24S)	15 —16

Zinc

New zinc clippings	14½—15
Old zinc	11 —11⅛
Zinc routings	8½— 9
Old die cast scrap	8 — 8¼

Nickel and Monel

Pure nickel clippings	90 —100
Clean nickel turnings	80 —90
Nickel anodes	90 —100
Nickel rod ends	90 —100
New Monel clippings	30 —35
Clean Monel turnings	20 —25
Old sheet Monel	25 —30
Inconel clippings	30 —35
Nickel silver clippings, mixed	16 —18
Nickel silver turnings, mixed	15 —16

Lead

Soft scrap, lead	15 —15¼
Battery plates (dry)	8¾— 9

Magnesium

Segregated solids	9 —10
Castings	5½— 6½

Miscellaneous

Block tin	120 —125
No. 1 pewter	80 —85
No. 1 auto babbitt	75 —80
Mixed common babbitt	12¼—12½
Solder joints	23 —24
Siphon tops	75 —80
Small foundry type	18¼—18½
Monotype	16⅝—17
Lino. and stereotype	16½—16⅝
Electrotype	15 —15½
Hand picked type shells	11½—11¾
Lino. and stereo. dross	8¾— 9
Electro. dross	6¾— 7

SCRAP *iron and steel*

markets
prices
trends

Dealers slow in collections . . . Mills buy foundry grades for openhearths . . . Trade generally approves order, asks revisions.

Some scrap consumers are saying that dealers are in semi-retirement and can be seen walking around with vacation folders in their pockets. The dealers have been given a quadruple dose of take-it-easy pills: (1) That heavy strength-sapping shipping before the order deadline, (2) removal of the gamble for higher prices next week that spurred collection, (3) bad weather in some districts, (4) confusion over facets of the order.

In other districts the scrap movement started to gain momentum.

Mills are not pleased at their disinterest. They need scrap. Local eastern and out-of-district mills were buying foundry grades Nos. 20 and 21 for openhearth use—and were paying the premium price.

NPA last week ordered electric furnace grades Nos. 11 through 18 out of the reach of openhearth users and a similar order was expected for foundry grades Nos. 20, 21. In Washington, scrap men told the Office of Price Stabilization that the trade was "generally satisfied" with the order but asked for revisions and definitions. Some scrap men feel that these interpretations and amendments are too slow in coming.

PITTSBURGH—Controls have slowed activity to a walk in this area. The prohibition against use of electric furnace grades in openhearths has calmed worried electric furnace producers. A similar prohibition against openhearth consumption of foundry scrap is expected. Specialty steel producers look for establishment of a controlled price of about $150 for stainless scrap this week. This scrap is now bringing as much as $200 per ton, a price most mills refuse to pay. Allocated scrap was not a factor here early in the week, although it was reported that some eastern and midwestern mills were receiving allocated tonnages. It is understood NPA has compiled a list of generators of 100 tons or more of scrap per month, for allocation.

CHICAGO—Bad weather is hindering dealers' collection of scrap here so that they have little inventory not already committed. Industrial scrap flowing into yards is going out as fast as it comes in. Close inspection of incoming scrap for grading purposes will cause slight delays in shipment. New orders are easy to come by but difficult to fill. Foundries who held off buying previous to price controls are desperately trying to pick up tonnage. Most railroad scrap is going by allocation. Greater market activity is expected as old orders become filled and the severe weather lets up.

PHILADELPHIA—Western mills came into this market and started buying foundry grades of scrap (grades 20 and 21) and soon the local mills followed along. The idea was to replace the electric furnace material (grades 11 to 18) which they had been buying but which the government has ordered them not to buy as of last week. Mill inventories are low but the trade is now getting used to the controls and scrap is moving along a bit better.

NEW YORK—The market here is stubbornly dull. Dealers have no immediate incentive to start speculative collections and the scrap order itself is confusing some. The incentive to stay in business will later perk up scrap collection. But right now the mills need scrap and they aren't getting it. Some openhearth users are buying foundry grades and paying the price. No. 2 bundles are doing a fast exit out of the market.

DETROIT—The scrap situation here was badly confused. Because of clauses in the scrap order permitting use of combined rail and water rates, Detroit brokers report they had orders on their books for the same grades at $39.05, $40.10 and $40.20. There were reports that the Detroit base might have to be knocked out temporarily.

Further confusion centered around the question of openhearth and electric furnace bundles. Since few Detroit bundles meet the size qualifications set forth in the scrap order, dealers are claiming the right to sell to electric melters at electric furnace prices even though size qualifications are not fully met. Also, some confusion exists over flashings, not officially graded.

CLEVELAND—Movement of tonnage is down to a trickle in a subdued and uncertain market here and in the Valley. Two major consumers and a few foundries in this district are on allocations. Some openhearths are buying cast grades, indicative of rapidly diappearing inventories. Some report the new regulations confusing, particularly on premium grades. Further clarification is awaited.

ST. LOUIS—The scrap market has settled down with a feeling the base ceiling prices fixed by OPS are fair to all interests. It is believed there are some differentials yet to be worked out. Railroads feel their prices should be at shipping points. Mills are buying as they need the material. The movement has been slow because of the ice weather in the producing territories.

BIRMINGHAM — The scrap situation in this area is still unsettled. With prices stabilized everyone seems anxious to sell and dealers are buying freely. The largest buyer in the area has been out of the market for the past 3 weeks, but some foundries are buying. One large eastern mill is reported supplementing its heavy melting purchases with foundry grades.

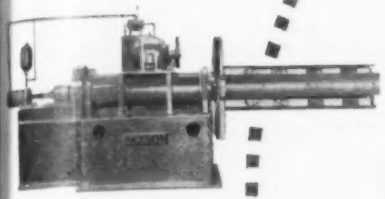
CINCINNATI—Scrap is beginning to move here. Mills are hungry and need tonnage and two are receiving some allocated material, industrial and railroad. This may well be the last month there will be any railroad or industrial tonnage that is not allocated. Foundries appear to be in fairly good shape, but the demand for cast material is terrific.

BOSTON—Scrap moved steadily in a fairly good local market. Unstripped motor blocks again sold at $38 to $39 with the ceiling price $43. The feeling here is that the government in setting ceiling prices was off-base on this item. Mills in the Midwest can now buy the same grade closer to home at a lower price when freight is added.

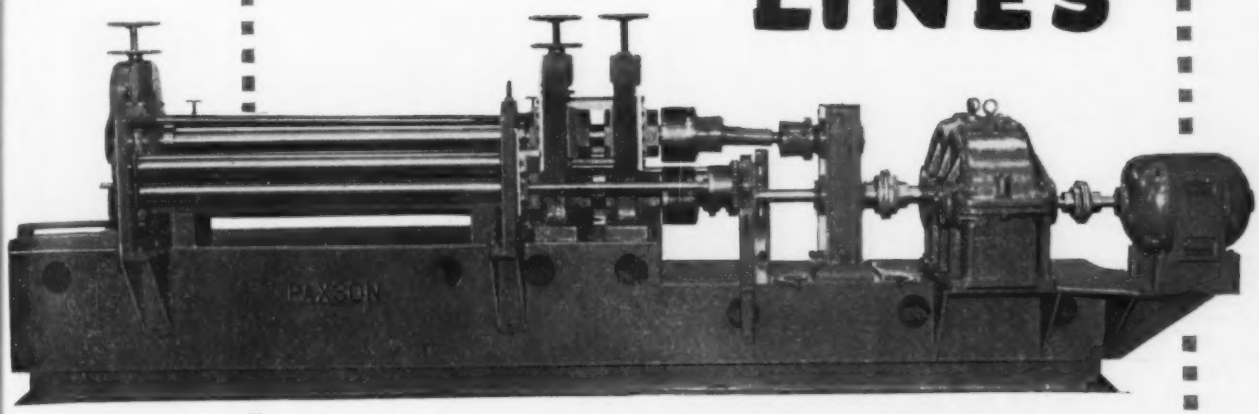
BUFFALO—Scrap shipments improved but mills were still short. Better weather aided dealers' yard activities. New business was reported in cast at ceiling levels. Dealers were mostly satisfied with fixed prices but complained against the 83¢ switching charge here.

PAXSON GIVES YOU THE EDGE

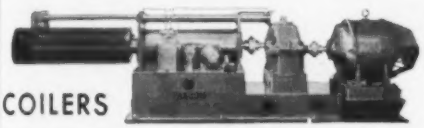
HEAVY-DUTY *Slitting* LINES



PAY-OFF REELS

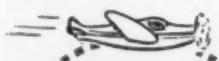


SLITTERS



COILERS

STRAIGHTENERS
SCRAP WINDERS
SCRAP CHOPPERS



Complete PAXSON lines are setting performance records—*coast to coast*

Paxson Slitters are proving their efficiency for the toughest jobs, such as cutting heavy wall tubing stock and other heavy-duty slitting. Capacities up to 30,000 lb. coils. Various power, to meet requirements up to 1½" total metal thickness. Paxson also builds general duty lines.

Whatever your slitting requirements — contact Paxson.

Do You Fly?

2800 ft. E.W. runway and club house, private field 2 miles west of Salem, maintained for your convenience. Wire or phone arrival time. We will meet your plane.

PAXSON MACHINE CO.

SALEM • OHIO

Engineers and Builders of Cold-Rolled Strip-Mill Equipment

SPECIALIZING IN SLITTING LINES

REMEMBER, ALL PAXSON LINES ARE CUSTOM BUILT

4

Iron and Steel SCRAP PRICES

(Maximum basing point prices, per gross ton, as set by OPS, effective Feb. 7, 1951. Shipping point and delivered prices calculated as shown below.)

Switching Charge (Dollars per gross ton) →	Pittsburgh .99	Johnstown .75	Brackenridge .53	Butler .68	Midland .75	Monessen .51	Sharon .75	Youngstown .75	Canton .51	Steubenville .51	Warren .75	Weirton .70	Cleveland .76	Buffalo .83	Cincinnati .65	Middletown .26	Chicago 1.34	Claymont .79	Coatesville .50	Conshohocken .20	Harrisburg .51	Phoenixville .51	Sparrows Pt. .20	Bethlehem .52	Ashland, Ky. .47	Kokomo, Ind. .51	Portsmouth, O. .51	St. Louis .51	Detroit .95	Duluth .50	Kansas City .78	Birmingham .50	Alabama City .43	Atlanta .51	Minneapolis .33	Houston .57	Los Angeles .66	Pittsburg, Cal. .65	Portland, Ore. .82	Seattle .88	San Francisco .88
Basing Points →	Pittsburgh	Johnstown	Brackenridge	Butler	Midland	Monessen	Sharon	Youngstown	Canton	Steubenville	Warren	Weirton	Cleveland	Buffalo	Cincinnati	Middletown	Chicago	Claymont	Coatesville	Conshohocken	Harrisburg	Phoenixville	Sparrows Pt.	Bethlehem	Ashland, Ky.	Kokomo, Ind.	Portsmouth, O.	St. Louis	Detroit	Duluth	Kansas City	Birmingham	Alabama City	Atlanta	Minneapolis	Houston	Los Angeles	Pittsburg, Cal.	Portland, Ore.	Seattle	San Francisco
GRADES																																								
No. 1 heavy melting	$44.00							$44.00					$43.00				$42.50						$42.00					$41.00	$40.00		$39.50		$39.00		$38.00		$37.00		$35.00	
No. 2 heavy melting	42.00							42.00					41.00				40.50						40.00					39.00	38.00		37.50		37.00		36.00		35.00		33.00	
No. 1 busheling	44.00							44.00					43.00				42.50						42.00					41.00	40.00		39.50		39.00		38.00		37.00		35.00	
No. 1 bundles	44.00							44.00					43.00				42.50						42.00					41.00	40.00		39.50		39.00		38.00		37.00		35.00	
No. 2 bundles	41.00							41.00					40.00				39.50						39.00					38.00	37.00		36.50		36.00		35.00		34.00		32.00	
Machine shop turnings	34.00							34.00					33.00				32.50						32.00					31.00	30.00		29.50		29.00		28.00		27.00		25.00	
Mixed borings and turnings	38.00							38.00					37.00				36.50						36.00					35.00	34.00		33.50		33.00		32.00		31.00		29.00	
Shoveling turnings	38.00							38.00					37.00				36.50						36.00					35.00	34.00		33.50		33.00		32.00		31.00		29.00	
Cast iron borings	38.00							38.00					37.00				36.50						36.00					35.00	34.00		33.50		33.00		32.00		31.00		29.00	
No. 1 chemical borings	41.00							41.00					40.00				39.50						39.00					38.00	37.00		36.50		36.00		35.00		34.00		32.00	
Forge crops	51.50							51.50					50.50				50.00						49.50					48.50	47.50		47.00		46.50		45.50		44.50		42.00	
Bar crops and plate	49.00							49.00					48.00				47.50						47.00					46.00	45.00		44.50		44.00		43.00		42.00		40.00	
Punchings and plate	46.50							46.50					45.50				45.00						44.50					43.50	42.50		42.00		41.50		40.50		39.50		37.00	
Electric furnace bundles	46.00							46.00					45.00				44.50						44.00					43.00	42.00		41.50		41.00		40.00		39.00		37.00	
Cut struct., plate, 3 ft and less	47.00							47.00					46.00				45.50						45.00					44.00	43.00		42.50		42.00		41.00		40.00		38.00	
Cut struct., plate, 2 ft and less	49.00							49.00					48.00				47.50						47.00					46.00	45.00		44.50		44.00		43.00		42.00		40.00	
Cut struct., plate, 1 ft and less	50.00							50.00					49.00				48.50						48.00					47.00	46.00		45.50		45.00		44.00		43.00		41.00	
Heavy turnings	43.00							43.00					42.00				41.50						41.00					40.00	39.00		38.50		38.00		37.00		36.00		34.00	
No. 1 RR heavy melting	46.00							46.00					45.00				44.50						44.00					43.00	42.00		41.50		41.00		40.00		39.00		37.00	
Scrap rails, random lengths	48.00							48.00					47.00				46.50						46.00					45.00	44.00		43.50		43.00		42.00		41.00		39.00	
Scrap rails, 3 ft and less	51.00							51.00					50.00				49.50						49.00					48.00	47.00		46.50		46.00		45.00		44.00		42.00	
Scrap rails, 2 ft and less	52.00							52.00					51.00				50.50						50.00					49.00	48.00		47.50		47.00		46.00		45.00		43.00	
Scrap rails, 18 in. and less	54.00							54.00					53.00				52.50						52.00					51.00	50.00		49.50		49.00		48.00		47.00		45.00	
Rerolling rails	53.00							53.00					52.00				51.50						51.00					50.00	49.00		48.50		48.00		47.00		46.00		44.00	
Uncut tires	48.00							48.00					47.00				46.50						46.00					45.00	44.00		43.50		43.00		42.00		41.00		39.00	
Cut tires	51.00							51.00					50.00				49.50						49.00					48.00	47.00		46.50		46.00		45.00		44.00		42.00	
Cut bolsters and side frames	49.00							49.00					48.00				47.50						47.00					46.00	45.00		44.50		44.00		43.00		42.00		40.00	
RR specialties	51.00							51.00					50.00				49.50						49.00					48.00	47.00		46.50		46.00		45.00		44.00		42.00	
Solid steel axles	58.00							58.00					57.00				56.50						56.00					55.00	54.00		53.50		53.00		52.00		51.00		49.00	
No. 3 steel wheels	51.00							51.00					50.00				49.50						49.00					48.00	47.00		46.50		46.00		45.00		44.00		42.00	

SWITCHING DISTRICTS—These basing points include the indicated switching districts: Pittsburgh; Bessemer, Homestead, Duquesne, Munhall. Cincinnati; Newport. St. Louis; Granite City, East St. Louis, Madison. San Francisco; South San Francisco, Niles, Oakland. Claymont; Chester. Chicago; Gary. Los Angeles; Firestone.

SHIPPING POINT PRICES (Except RR scrap)—For shipping points within basing points, the ceiling shipping point price is the basing point price, less switching charge. The ceiling for shipping points outside basing points is the basing point price yielding the highest shipping point price, less the lowest established freight charge. Dock charge, where applicable, is $1.25 per gross ton except: Memphis, 95¢; Great Lakes ports, $1.50, and New England ports, $1.75. Maximum shipping point price on No. 1 heavy melting steel in New York City is $36.99 per gross ton with set differentials for other grades. Hudson and Bergen County, N. J., shipping point prices are computed from Bethlehem basing point. All New Jersey computations use all-rail transport. Ceiling need not fall below $32 per gross ton for No. 1 heavy melting steel, with set differentials for other grades. Cast scrap shipping point prices are given in table.

DELIVERED PRICES (Except RR scrap)—Ceiling is the shipping point price plus actual freight charge, tax included. Dock charges, where applicable, are as above.

DELIVERED PRICES (RR scrap)—Ceiling on-line price of a RR operating in a basing point is the top in the highest priced basing point in which the RR operates. For off-line prices, RR's not operating in basing point, non-operating RR's, and RR scrap sold by someone other than a RR see text of order, THE IRON AGE, Feb. 8, 1951, p. 137-C.

UNPREPARED SCRAP—Ceiling price is $8 a ton less than prepared base grades (No. 1 heavy & No. 1 RR heavy). Scrap suitable for compressing into No. 1 bundles is $6 less than No. 1 bundles; suitable for compressing into No. 2 bundles, $8 less than No. 2 bundles. For cast material requiring special preparation, price is breakable cast less preparation costs.

COMMISSIONS—Brokers are permitted a maximum of $1 per gross ton commission which must be separate on the bill.

ALLOY PREMIUMS—Alloy extras are permitted on: nickel, molybdenum, manganese, silicon, and chromium. Quantities and charges may be found in the order, THE IRON AGE, Feb. 8, 1951, p. 137-D.

RESTRICTIONS ON USE—Ceiling prices on some scrap items may fluctuate with use by consumers. If some scrap is purchased for its established specialized use, the ceiling price set in the order stands. But if some special grades are purchased for other uses, the ceiling price charge shall be the price of the scrap grade being substituted. For example, the price established for Grade 28 (wrought iron) may be charged only when sold to a producer of wrought iron. Otherwise the ceiling price shall not exceed the ceiling price for the corresponding grade of basic openhearth. Restrictions on use are placed on the following grades: Chemical borings, wrought iron, rerolling rails, cupola cast, clean auto cast, and malleable. Ceiling prices on billet bloom and forge crops, alloy-free turnings, and heavy turnings may be charged only when shipped directly from industrial producer. NPA prohibits openhearth users from buying electric furnace grades, Nos. 11 through 18.

CEILING DELIVERED PRICES FOR TRUCK SHIPMENT OF ALL STEEL OR CAST IRON SCRAP—If delivery is made by truck public carrier, ceiling delivered price shall be the ceiling shipping point price (or in the case of railroad scrap, the pertinent ceiling on-line price) plus the actual public carrier charge. Scrap delivered by shipper or broker trucks shall have a ceiling delivered price consisting of the ceiling shipping point price (or railroad ceiling on-line price) plus the established rail carload freight rate for shipping scrap from the rail siding nearest the point of delivery. Transportation charges for delivery in a shipper or broker truck shall not exceed $4 and need not fall below $2.50.

Cast Scrap

(F.o.b. all shipping points)

Cupola cast	$49.00
Charging box cast	47.00
Heavy breakable cast	45.00
Cast iron brake shoes	41.00
Stove plate	46.00
Clean auto cast	52.00
Unstripped motor blocks	43.00
Cast iron carwheels	47.00
Malleable	55.00
Drop broken machinery cast	52.00

Boston, unstripped motor blocks....$38 to $39

CEILING SHIPPING POINT, CEILING ON-LINE PRICES FOR ALL CAST IRON SCRAP—The above table shows blanket ceiling prices per gross ton for all cast iron scrap, f.o.b. shipping points.

CEILING DELIVERED PRICES—The ceiling delivered price for shipment by rail, vessel, or both of dealer and industrial cast iron scrap shall be the shipping point price plus the actual transportation charges to the point of delivery. Public dock charges may be added to actual transportation charges. Where dock facilities are owned or controlled by the shipper, certain fixed charges apply. (See steel scrap footnote.)

CEILING DELIVERED PRICES FOR TRUCK SHIPMENT OF ALL STEEL OR CAST IRON SCRAP—(See steel scrap footnote).

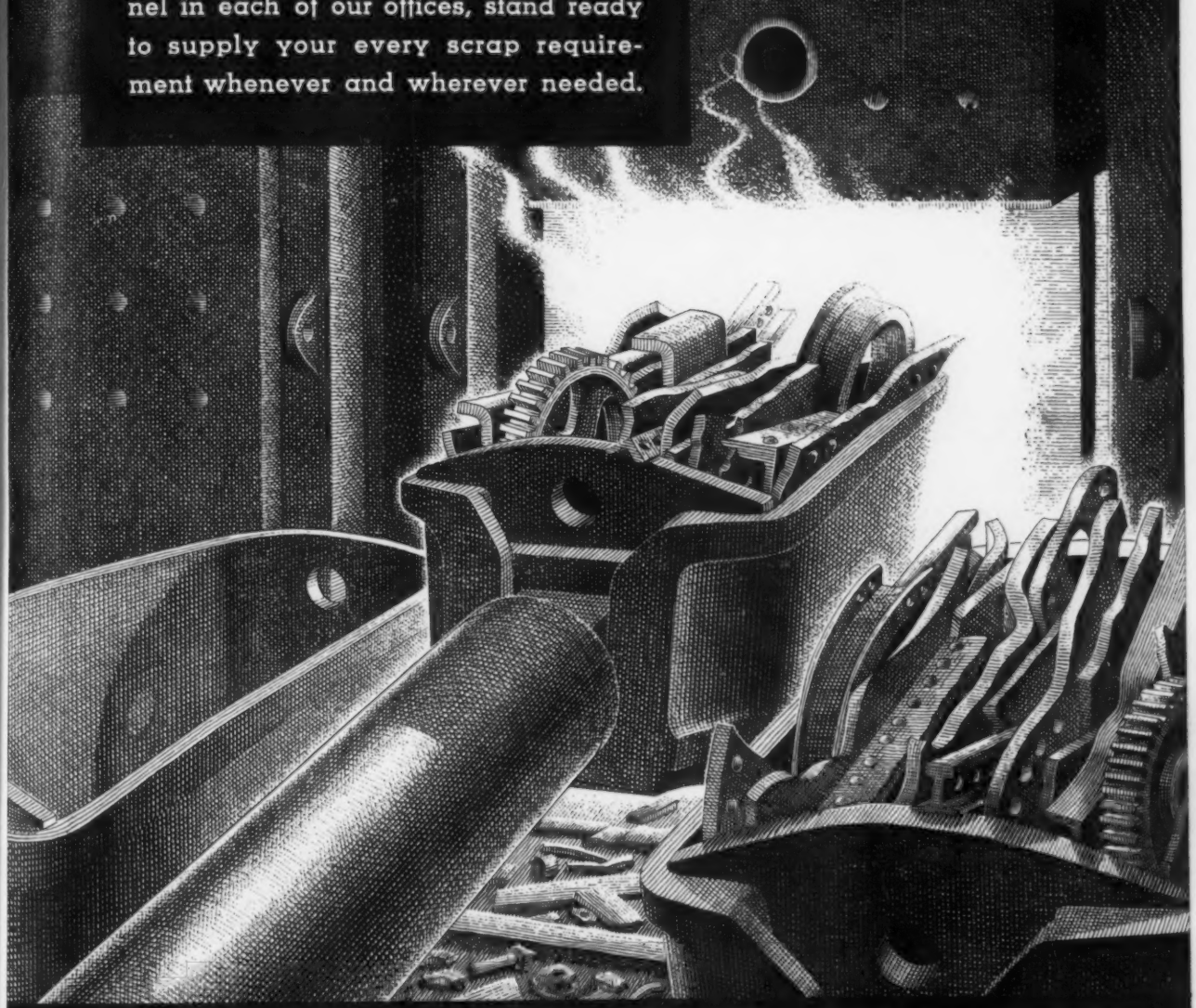
RESTRICTIONS ON USE—(See steel scrap footnote).

CEILING INTRANSIT PREPARATION CHARGES (Dollars per gross ton)

No. 1 heavy; No. 2 heavy; No. 1 RR heavy; No. 2 RR heavy; No. 1 busheling; No. 2 bundles; electric furnace bundles	$ 8.00
No. 1 bundles; briquetted turnings or cast iron borings; No. 1 RR sheet scrap	6.00
Crushing machine shop turnings	3.00
Bar crops and plate; punchings and plate; structural and plate, 1 ft & less, and 3 ft and less; foundry steel, 1 ft & less and 2 ft & less; wrought iron	10.00
Rails, 3 ft & less; cut tires; cut bolsters & side frames	4.00
Rails, 2 ft & less	5.00
Rails, 18 in. & less	7.00

SCRAP *at your Service!*

The facilities and experienced personnel in each of our offices, stand ready to supply your every scrap requirement whenever and wherever needed.



LURIA BROTHERS AND COMPANY, INC.

CONSULT OUR NEAREST OFFICE FOR THE PURCHASE AND SALE OF SCRAP

PLANTS

LEBANON, PENNA.
READING, PENNA.
DETROIT (ECORSE), MICHIGAN
MODENA, PENNA.
PITTSBURGH, PENNA.
ERIE, PENNA.

MAIN OFFICE

LINCOLN-LIBERTY BLDG.
Philadelphia 7, Penna.

OFFICES

BIRMINGHAM, ALA. Empire Building
CHICAGO, ILLINOIS 100 W. Monroe St.
HOUSTON, TEXAS 1114 Texas Av. Bldg.
PITTSBURGH, PA. Oliver Building
BOSTON, MASS. Statler Building
CLEVELAND, OHIO 1022 Midland Bldg.
LEBANON, PENNA. Luria Building
PUEBLO, COLORADO 334 Colorado Bldg.
BUFFALO, N. Y. Genesee Building
DETROIT, MICHIGAN 2011 Book Building
NEW YORK, N. Y. 100 Park Avenue
READING, PENNA. Luria Building
ST. LOUIS, MISSOURI 2110 Railway Exchange Bldg.
SAN FRANCISCO, CALIFORNIA Pacific Gas & Elec. Co., Bldg.

LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices

Steel prices in this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel: (cents per pound)	Feb. 20, 1951	Feb. 13, 1951	Jan. 23, 1951	Feb. 21 1950
Hot-rolled sheets	3.60	3.60	3.60	3.35
Cold-rolled sheets	4.35	4.35	4.35	4.10
Galvanized sheets (10 ga)	4.80	4.80	4.80	4.40
Hot-rolled strip	3.50	3.50	3.50	3.25
Cold-rolled strip	4.75	4.75	4.75	4.21
Plate	3.70	3.70	3.70	3.50
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R-strip (No. 302)	36.50	36.50	36.50	33.00
Tin and Terneplate: (dollars per base box)				
Tinplate (1.50 lb) cokes.	$7.50	$7.50	$7.50	$7.50
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.60
Special coated mfg. ternes	6.35	6.35	6.35	6.50
Bars and Shapes: (cents per pound)				
Merchant bars	3.70	3.70	3.70	3.45
Cold finished bars	4.55	4.55	4.55	*4.145
Alloy bars	4.30	4.30	4.30	3.95
Structural shapes	3.65	3.65	3.65	3.40
Stainless bars (No. 302)	31.25	31.25	31.25	28.50
Wrought iron bars	9.50	9.50	9.50	9.50
Wire: (cents per pound)				
Bright wire	4.85	4.85	4.85	4.50
Rails: (dollars per 100 lb)				
Heavy rails	$3.60	$3.60	$3.60	$3.40
Light rails	4.00	4.00	4.00	3.75
Semifinished Steel: (dollars per net ton)				
Rerolling billets	$56.00	$56.00	$56.00	$54.00
Slabs, rerolling	56.00	56.00	56.00	54.00
Forging billets	66.00	66.00	66.00	63.00
Alloy blooms billets, slabs	70.00	70.00	70.00	66.00
Wire Rod and Skelp: (cents per pound)				
Wire rods	4.10	4.10	4.10	3.85
Skelp	3.35	3.35	3.35	3.15

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*

Pig Iron: (per gross ton)	Feb. 20, 1951	Feb. 13, 1951	Jan. 23, 1951	Feb. 21 1950
No. 2 foundry, del'd Phila.	$57.77	$57.77	$57.77	$50.42
No. 2, Valley furnace	52.50	52.50	52.50	46.50
No. 2, Southern Cin'ti	55.58	55.58	55.58	49.08
No. 2, Birmingham	48.88	48.88	48.88	42.38
No. 2, foundry, Chicago†	52.50	52.50	52.50	46.50
Basic del'd Philadelphia	56.92	56.92	56.92	49.92
Basic, Valley furnace	52.00	52.00	52.00	46.00
Malleable, Chicago†	52.50	52.50	52.50	46.50
Malleable, Valley	52.50	52.50	52.50	46.50
Charcoal, Chicago	70.56	70.56	70.56	68.56
Ferromanganese‡	186.25	186.25	186.25	173.40

†The switching charge for delivery to foundries in the Chicago district is $1 per ton.
‡Average of U. S. prices quoted on Ferroalloy page.

Scrap: (per gross ton)				
Heavy melt'g steel, P'gh.	$44.00*	$44.00*	$46.13	$31.75
Heavy melt'g steel, Phila.	42.50*	42.50*	47.50	23.00
Heavy melt'g steel, Ch'go	42.50*	42.50*	44.63	27.50
No. 1 hy. com. sh't, Det.	40.00*	40.00*	40.25	22.50
Low phos. Young'n	46.50*	46.50*	54.50	32.75
No. 1 cast, Pittsburgh	49.00†	49.00†	67.75	37.50
No. 1 cast, Philadelphia	49.00†	49.00†	62.50	35.50
No. 1 cast, Chicago	49.00†	49.00†	63.00	39.50

*Basing Pt. †Shipping Pt.
Not including broker's fee after Feb. 7, 1951.

Coke: Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.25	$14.25	$14.25	$14.00
Foundry coke, prompt	17.25	17.25	17.25	15.75
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electro, Conn.	24.50	24.50	24.50	18.50
Copper, Lake, Conn.	24.625	24.625	24.625	18.625
Tin, Straits, New York	$1.83†	$1.83*	$1.78	74.50
Zinc, East St. Louis	17.50	17.50	17.50	9.75
Lead, St. Louis	16.80	16.80	16.80	11.80
Aluminum, virgin	19.00	19.00	19.00	17.00
Nickel, electrolytic	53.55	53.55	53.55	42.97
Magnesium, ingot	24.50	24.50	24.50	20.50
Antimony, Laredo, Tex.	42.00	42.00	42.00	27.25

†Tentative. *Revised.

Composite Prices

Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 130 of May 12, 1949, issue.)

	Finished Steel Base Price	Pig Iron	Scrap Steel
Feb. 20, 1951	4.131¢ per lb.	$52.69 per gross ton	$43.00 per gross ton
One week ago	4.131¢ per lb.	52.69 per gross ton	43.00 per gross ton
One month ago	4.131¢ per lb.	52.69 per gross ton	46.08 per gross ton
One year ago	3.837¢ per lb.	46.38 per gross ton	27.42 per gross ton

	Finished Steel Base Price High	Finished Steel Base Price Low	Pig Iron High	Pig Iron Low	Scrap Steel High	Scrap Steel Low
1951	4.131¢ Jan. 2	4.131¢ Jan. 2	$52.69 Jan. 2	$52.69 Jan. 2	$47.75 Jan. 30	$43.00 Feb. 7
1950	4.131¢ Dec. 1	3.837¢ Jan. 3	52.69 Dec. 12	45.88 Jan. 3	45.13 Dec. 19	26.25 Jan. 3
1949	3.837¢ Dec. 27	3.3705¢ May 3	46.87 Jan. 18	45.88 Sept. 6	43.00 Jan. 4	19.33 June 28
1948	3.721¢ July 27	3.193¢ Jan. 1	46.91 Oct. 12	39.58 Jan. 6	43.16 July 27	39.75 Mar. 9
1947	3.193¢ July 29	2.848¢ Jan. 1	37.98 Dec. 30	30.14 Jan. 7	42.58 Oct. 28	29.50 May 20
1946	2.848¢ Dec. 31	2.464¢ Jan. 1	30.14 Dec. 10	25.37 Jan. 1	31.17 Dec. 24	19.17 Jan. 1
1945	2.464¢ May 29	2.396¢ Jan. 1	25.37 Oct. 23	23.61 Jan. 2	19.17 Jan. 2	18.92 May 22
1944	2.396¢	2.396¢	$23.61	$23.61	19.17 Jan. 11	15.76 Oct. 24
1943	2.396¢	2.396¢	23.61	23.61	$19.17	$19.17
1942	2.396¢	2.396¢	23.61	23.61	19.17	19.17
1941	2.396¢	2.396¢	$23.61 Mar. 20	$23.45 Jan. 2	$22.00 Jan. 7	$19.17 Apr. 10
1940	2.30467¢ Jan. 2	2.24107¢ Apr. 16	23.45 Dec. 23	22.61 Jan. 2	21.83 Dec. 30	16.04 Apr. 9
1939	2.35367¢ Jan. 3	2.26689¢ May 16	22.61 Sept. 19	20.61 Sept. 12	22.50 Oct. 3	14.08 May 16
1838	2.58414¢ Jan. 4	2.27207¢ Oct. 18	23.25 June 21	19.61 July 6	15.00 Nov. 22	11.00 June 7
1937	2.58414¢ Mar. 9	2.32263¢ Jan. 4	32.25 Mar. 9	20.25 Feb. 16	21.92 Mar. 30	12.67 June 9
1936	2.32263¢ Dec. 28	2.05200¢ Mar. 10	19.74 Nov. 24	18.73 Aug. 11	17.75 Dec. 21	12.67 June 8
1932	1.89196¢ July 5	1.83910¢ Mar. 1	14.81 Jan. 5	13.56 Dec. 6	8.50 Jan. 12	6.43 July 5
1929	2.31773¢ May 28	2.26498¢ Oct. 29	18.71 May 14	18.21 Dec. 17	17.58 Jan. 29	14.08 Dec. 8

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

SINCE 1850

AMERICA'S LIVING STANDARDS, in their advance from the crude devices of pioneer days to the comforts of today, have been paced by the production and transportation of the necessary ores from which have been made the metals that have made such development possible.

LAKE SUPERIOR IRON ORE • FERRO ALLOYS
VESSEL TRANSPORTATION • COAL

THE Cleveland-Cliffs IRON COMPANY
UNION COMMERCE BUILDING • CLEVELAND 14, OHIO

IRON AGE

STEEL PRICES

Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page.
Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.

	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middletown	Youngstown	Bethlehem	Buffalo	Conshohocken	Johnstown	Sparrows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	$52.00[1]													
Alloy, net ton	$54.00[1,17]													$54.00[31]
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	$56.00[1,5]	$56.00[1]	$56.00[1]						$56.00[3]		$56.00[3]			
Carbon forging billets, net ton	$68.00[1,5]	$66.00[1,4]	$66.00[1]	$66.00[4]	$66.00[4]				$66.00[3,4]	$73.00[26]	$66.00[3]			$69.00[31]
Alloy, net ton	$70.00[1,17,6]	$70.00[1,4,6]	$70.00[1]		$70.00[4]			$70.00[3]	$70.00[3,4]	$77.00[26]	$70.00[3]			$73.00[31]
PIPE SKELP	3.35[1] 3.45[5]						3.35[1,4]							
WIRE RODS	4.10[2] 4.30[18]	4.10[2,4,33]	4.10[6]	4.10[3]			4.10[6]		4.10[35]		4.10[3]	4.20[3]		
SHEETS Hot-rolled (18 ga. & hvr.)	3.60[1,5,9,15] 3.75[28]	3.60[8,23]	3.60[1,6,8]	3.60[4,5]		3.60[7]	3.60[1,4,6] 4.00[13]		3.60[3]	4.00[26]		3.60[3]	4.30[22]	3.80[13] 4.40[47]
Cold-rolled	4.35[1,5,9,15] 5.35[63,7]		4.35[1,6,8]	4.35[4,5]		4.35[7]	4.35[4,6]		4.35[3]			4.35[3]	5.05[22]	4.55[13]
Galvanized (10 gage)	4.80[1,9,15]		4.80[1,8]		4.80[4]	4.80[7]	5.50[44] 6.00[44]					4.80[3]	5.50[22]	
Enameling (12 gage)	4.65[1]		4.65[1,8]	4.65[4]		4.65[7]	4.65[6]						5.35[22]	
Long terne (10 gage)	5.20[9,15]		5.20[1]			5.20[7]	6.00[64]							
Hi str. low alloy, h.r.	5.40[1,5] 5.75[9]	5.40[1]	5.40[1,8] 5.90[6]	5.40[4,5]			5.40[1,4,13] 5.90[6]		5.40[3]	5.65[26]		5.40[3]		5.95[12]
Hi str. low alloy, c.r.	6.55[1,5] 6.90[9]		6.55[1,8] 7.05[6]	6.55[4,5]			6.55[4] 7.05[6]		6.55[3]			6.55[3]		7.10[12]
Hi str. low alloy, galv.	7.20[1]											6.75[3]		
STRIP Hot-rolled	3.60[9], 4.00[41,58], 3.75[28] 3.50[5,7]	3.50[66]	3.50[1,6,8]			3.50[7]	3.50[1,4,6] 4.00[13]		3.50[3,4]	3.90[26]	3.50[3]	3.50[3]		4.40[47] 3.90[13]
Cold-rolled	4.65[5,7,9] 5.00[28] 5.35[10,63,58]	4.90[8,66]	4.90[8]	4.85[3,8]		4.65[7]	4.65[4,6] 5.25[48,49] 5.35[13,40]		4.85[3] *			4.65[3]		4.85[12] 5.45[47] 5.60[49,61]
Hi str. low alloy, h.r.	5.75[9]		5.50[1] 5.30[8], 5.80[6]				4.95[4], 5.50[1] 5.40[13] 5.80[6]		4.95[3]	5.55[26]		4.95[3]		5.95[12]
Hi str. low alloy, c.r.	7.20[9]			{6.55[2] {6.70[8]			{6.20[4], 6.55[13] {7.05[6]		6.40[3]			6.40[3]		
TINPLATE† Coke, 1.25-lb base box (1.50 lb. add 25¢)	$8.45[1,5,9,15]		$8.45[1,6,8]				$8.45[4]					$8.55[3]		
Electrolytic 0.25, 0.50, 0.75 lb box	0.25 lb. base box, $7.15[1,4,5,8,9]; $7.25[3,11]; $7.35[22] 0.50 lb., add 25¢; 0.75 lb. add 65¢													
BLACKPLATE, 29 gage Hollowware enameling	5.85[1] 6.15[18] 6.25[5]		5.85[1]				5.30[4]							
BARS Carbon steel	3.70[1,5] 3.85[9]	3.70[1,4,23]	3.70[1,4,6,8]	3.70[4]	3.70[4]		3.70[1,4,6]		3.70[3,4]		3.70[3]			3.85[31]
Reinforcing‡	3.70[1,5]	3.70[4]	3.70[1,6,8]	3.70[4]			3.70[1,4,6]		3.70[3,4]		3.70[3]	3.70[3]		
Cold-finished	4.55[2,4,5,52,69,71]	4.55[2,69,70,23,73]	4.55[4,74,73]	4.55[2]	4.55[4,32]		4.55[6,57]		4.60[70]					4.70[64]
Alloy, hot-rolled	4.30[1,17]	4.30[1,4,23]	4.30[1,6,8]		4.30[4]		4.30[1,6]	4.30[3]	4.30[3,4]		4.30[3]			4.45[31] 4.65[12]
Alloy, cold-drawn	5.40[17,52,69,71,2]	5.40[4,23,69,70,73] 5.45[2]	5.40[4,73,74]		5.40[4,32,33]		5.40[6,25,57]	5.40[3]	5.40[3]					5.55[64]
Hi str. low alloy, h.r.	5.55[1,5]		5.55[1,8] 6.05[6]	5.55[4]			5.55[1]	5.55[3]	5.55[3]		5.55[3]			
PLATE Carbon steel	3.70[1,5,15]	3.70[1]	3.70[1,6,8]	3.70[4] 4.00[9]			3.70[1,4] 3.95[13]		3.70[3]	4.15[26]	3.70[3]	3.70[3]		
Floor plates	1		4.75[8]	4.75[5]						4.75[26]				
Alloy	4.75[1]	4.75[1]	4.75[1]				5.20[13]			5.05[26]	4.75[3]	4.75[3]		
Hi str. low alloy	5.65[1,5]	5.65[1]	5.65[1,8]	5.65[4,5]			5.65[4] 5.70[13]			5.90[26]	5.65[3]	5.65[3]		
SHAPES, Structural	3.65[1,5] 3.90[9]	3.65[1,23]	3.65[1,8]					3.70[3]	3.70[3]		3.70[3]			
Hi str. low alloy	5.50[1,5]	5.50[1]	5.50[1,8]					5.50[3]	5.50[3]		5.50[3]			
MANUFACTURERS' WIRE Bright	4.85[2,5] 5.10[18]	4.85[2] 4.23,33		4.85[3]				Kokomo—5.80[30]			4.85[3]	4.95[3]	Duluth—4.85[3]	
PILING, Steel Sheet	4.45[1]	4.45[1]	4.45[8]						4.45[3]					

STEEL PRICES

Smaller numbers indicate producing companies. See key at right. Prices are in cents per lb unless otherwise noted. Extras apply.

Kansas City	Houston	Birmingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana		
			F=$79.00[19]		INGOTS Carbon forging, net ton
	$82.00[83]		F=$80.00[19]		Alloy, net ton
		$56.00[11]	F=$75.00[19]		BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	$74.00[83]	$66.00[11]	F=$85.00[19] SF, LA, S=$85.00[62]	Geneva=$66.00[16]	Carbon forging billets, net ton
	$78.00[83]		F=$89.00[19] LA=$90.00[62]		Alloy net ton
					PIPE SKELP
	4.50[83]	4.10[4,11]	SF=4.90[2], F=4.90[19] LA=4.90[24,62]	Worcester=4.40[3] Minnequa=4.35[14] Portsmouth=4.30[20]	WIRE RODS
		3.60[4,11]	SF, LA=4.30[24] F=4.55[19]	Niles=5.25[84], Geneva=3.70[16] Ashland=3.60[7]	SHEETS Hot-rolled (18 ga. & hvr.)
		4.35[11]	SF=5.30[24] F=5.30[19]		Cold-rolled
		4.80[4,11]	SF, LA=5.55[24]	Ashland=4.80[7] Kokomo=5.20[30]	Galvanized (10 gage)
				Ashland=4.65[7]	Enameling (12 gage)
					Long ternes (10 gage)
		5.40[11]	F=6.35[19]		Hi str. low alloy, h.r.
			F=7.50[19]		Hi str. low alloy, c.r.
					Hi str. low alloy, galv.
4.10[83]	4.90[83]	3.50[4,11]	SF, LA=4.25[24,62] F=4.75[19], S=4.50[62]	Atlanta=4.05[68] Minnequa=4.55[14] Ashland=3.50[7]	STRIP Hot-rolled
			F=6.30[19] LA=6.40[27]	New Haven=5.15[3], 5.85[58] Trenton=6.00[45]	Cold-rolled
		5.30[11]	F=6.20[19] SF, LA=6.05[62] S=6.30[62]		Hi str. low alloy, h.r.
			F=6.95[19]		Hi str. low alloy, c.r.
		$8.55[11]	SF=9.20[24]		TINPLATE Cokes, 1.25-lb base box (1.50 lb, add 25¢)
					Electrolytic 0.25, 0.50, 0.75 lb box
		6.35[11]			BLACKPLATE, 29 gage Hollowware enameling
4.30[83]	4.10[83]	3.70[4,11]	SF, LA=4.40[24]	Atlanta=4.25[68] Minnequa=4.15[14]	BARS Carbon steel
4.38[83]	4.10[83]	3.70[4,11]	SF, S=4.45[62] F=4.40[19], LA=4.40[62]	Atlanta=4.25[68] Minnequa=4.50[14]	Reinforcing‡
				Newark=5.00[69] Putnam=5.10[69] Hartford=5.10[4] Los Angeles=6.00[4]	Cold-finished
4.90[83]	4.70[83]		LA=5.35[62] F=5.35[19]		Alloy, hot-rolled
				Newark=5.75[69] Worcester=5.75[3] Hartford=5.85[4]	Alloy, cold-drawn
		5.55[11]	F=6.60[19]		Hi str. low alloy, h.r.
	4.10[83]	3.70[4,11]	F=4.30[19] S=4.60[62] Geneva=3.70[16]	Claymont=4.15[30] Coatesville=4.15[21] Minnequa=4.50[14]	PLATE Carbon steel
				Harrisburg=5.25[38]	Floor plates
			F=5.70[19] Geneva=5.65[16]	Coatesville=5.25[21] Claymont=4.85[39]	Alloy
		5.65[11]	F=6.25[19]		Hi str. low alloy
4.25[83]	4.05[83]	3.65[4,11]	SF=4.20[62] F=4.25[16] LA=4.25[24,62] S=4.30[62]	Geneva 3.65[16] Minnequa 4.10[14]	SHAPES, Structural
		50[11]	F=6.10[19]		Hi str. low alloy
5.45[83]	5.25[83]	4.85[4,11]	SF, LA=5.80[24]	Atlanta=5.10[68] Worcester=5.15[3] Minnequa=5.10[14] Portsmouth=5.25[20]	MANUFACTURERS' WIRE Bright

KEY TO STEEL PRODUCERS

1 U. S. Steel Co., Pittsburgh
2 American Steel & Wire Co., Cleveland
3 Bethlehem Steel Co., Bethlehem
4 Republic Steel Corp., Cleveland
5 Jones & Laughlin Steel Corp., Pittsburgh
6 Youngstown Sheet & Tube Co., Youngstown
7 Armco Steel Corp., Middletown, Ohio
8 Inland Steel Co., Chicago
9 Weirton Steel Co., Weirton, W. Va.
10 National Tube Co., Pittsburgh
11 Tennessee Coal, Iron & R. R. Co., Birmingham
12 Great Lakes Steel Corp., Detroit
13 Sharon Steel Corp., Sharon, Pa.
14 Colorado Fuel & Iron Corp., Denver
15 Wheeling Steel Corp., Wheeling, W. Va.
16 Geneva Steel Co., Salt Lake City
17 Crucible Steel Co. of America, New York
18 Pittsburgh Steel Co., Pittsburgh
19 Kaiser Steel Corp., Oakland, Calif.
20 Portsmouth Div., Detroit Steel Corp., Detroit
21 Lukens Steel Co., Coatesville, Pa.
22 Granite City Steel Co., Granite City, Ill.
23 Wisconsin Steel Co., South Chicago, Ill.
24 Columbia Steel Co., San Francisco
25 Copperweld Steel Co., Glassport, Pa.
26 Alan Wood Steel Co., Conshohocken, Pa.
27 Calif. Cold Rolled Steel Corp., Los Angeles
28 Allegheny Ludlum Steel Corp., Pittsburgh
29 Worth Steel Co., Claymont, Del.
30 Continental Steel Corp., Kokomo, Ind.
31 Rotary Electric Steel Co., Detroit
32 Laclede Steel Co., St. Louis
33 Northwestern Steel & Wire Co., Sterling, Ill.
34 Keystone Steel & Wire Co., Peoria, Ill.
35 Central Steel & Wire Co., Harrisburg, Pa.
36 Carpenter Steel Co., Reading, Pa.
37 Eastern Stainless Steel Corp., Baltimore
38 Washington Steel Corp., Washington, Pa.
39 Jessop Steel Co., Washington, Pa.
40 Blair Strip Steel Co., New Castle, Pa.
41 Superior Steel Corp., Carnegie, Pa.
42 Timken Steel & Tube Div., Canton, Ohio
43 Babcock & Wilcox Tube Co., Beaver Falls, Pa.
44 Reeves Steel & Mfg. Co., Dover, Ohio
45 John A. Roebling's Sons Co., Trenton, N. J.
46 Simonds Saw & Steel Co., Fitchburg, Mass.
47 McLouth Steel Corp., Detroit
48 Cold Metal Products Co., Youngstown
49 Thomas Steel Co., Warren, Ohio
50 Wilson Steel & Wire Co., Chicago
51 Sweet's Steel Co., Williamsport, Pa.
52 Superior Drawn Steel Co., Monaca, Pa.
53 Tremont Nail Co., Wareham, Mass.
54 Firth Sterling St. & Carbide Corp., McKeesport
55 Ingersoll Steel Div., Chicago
56 Phoenix Iron & Steel Co., Phoenixville, Pa.
57 Fitzsimons Steel Co., Youngstown
58 Stanley Works, New Britain, Conn.
59 Universal-Cyclops Steel Corp., Bridgeville, Pa.
60 American Cladmetals Co., Carnegie, Pa.
61 Cuyahoga Steel & Wire Co., Cleveland
62 Bethlehem Pacific Coast Steel Corp., San Fran.
63 Follansbee Steel Corp., Pittsburgh
64 Niles Rolling Mill Co., Niles, Ohio
65 Atlantic Steel Co., Atlanta
66 Acme Steel Co., Chicago
67 Joslyn Mfg. & Supply Co., Chicago
68 Detroit Steel Corp., Detroit
69 Wycoff Steel Co., Pittsburgh
70 Bliss & Laughlin, Inc., Harvey, Ill.
71 Columbia Steel & Shafting Co., Pittsburgh
72 Cumberland Steel Co., Cumberland, Md.
73 La Salle Steel Co., Chicago
74 Monarch Steel Co., Inc., Hammond, Ind.
75 Empire Steel Co., Mansfield, Ohio
76 Mahoning Valley Steel Co., Niles, Ohio
77 Oliver Iron & Steel Co., Pittsburgh
78 Pittsburgh Screw & Bolt Co., Pittsburgh
79 Standard Forging Corp., Chicago
80 Driver Harris Co., Harrison, N. J.
81 Detroit Tube & Steel Div., Detroit
82 Reliance Div., Eaton Mfg. Co., Massillon, Ohio
83 Sheffield Steel Corp., Kansas City
84 Plymouth Steel Co., Detroit
85 Wickwire Spencer Steel, Buffalo
86 Angell Nail and Chaplet, Cleveland
87 Mid-States Steel & Wire, Crawfordsville, Ind.
88 National Supply, Pittsburgh, Pa.
89 Wheatland Tube Co., Wheatland, Pa.
90 Mercer Tube & Mfg. Co., Sharon, Pa.
91 Woodward Iron Co., Woodward, Ala.
92 Sloss-Sheffield Steel & Iron Co., Birmingham
93 Hanna Furance Corp., Detroit
94 Interlake Iron Corp., Cleveland
95 Lone Star Steel Co., Dallas
96 Mystic Iron Works, Everett, Mass.
97 Jackson Iron & Steel Co., Jackson, O.
98 Globe Iron Co., Jackson, O.
99 Pittsburgh Coke & Chemical Co., Pittsburgh
100 Shenango Furnace Co., Pittsburgh
101 Tennessee Products & Chemical Corp., Nashville
102 Koppers Co., Inc., Granite City, Ill.
103 Page Steel & Wire Div., American Chain & Cable., Monessen, Pa.

STAINLESS STEELS

Base price, cents per lb, f. o. b. mill.

Product	301	302	303	304	316	321	347	410	416	430
Ingots, rerolling	14.25	15.00	16.50	16.00	24.25	19.75	21.50	12.75	14.75	13.00
Slabs, billets rerolling	18.50	19.75	21.75	20.75	31.75	26.00	28.25	16.50	20.00	16.75
Forg. discs, die blocks, rings	34.00	34.00	36.50	35.50	52.50	40.00	44.50	28.00	28.50	28.50
Billets, forging	26.25	26.25	28.25	27.50	41.00	31.00	34.75	21.50	22.00	22.00
Bars, wires, structurals	31.25	31.25	33.75	32.75	48.75	36.75	41.25	25.75	26.25	26.25
Plates	33.00	33.00	35.00	35.00	51.50	40.50	45.00	27.00	27.50	27.50
Sheets	41.00	41.00	43.00	43.00	56.50	49.00	53.50	36.50	37.00	39.00
Strip, hot-rolled	26.50	28.00	32.25	30.00	48.25	36.75	41.00	23.50	30.25	24.00
Strip, cold-rolled	34.00	36.50	40.00	38.50	58.50	48.00	52.00	30.50	37.00	31.00

STAINLESS STEEL PRODUCING POINTS—*Sheets:* Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38 (type 316 add 5¢), 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, Ind., 67; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38 (type 316 add 5¢); W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport N. Y., 46; New Britain, Conn., 58; Sharon, Pa., 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y. 46; Canton, Ohio, 42; Ft. Wayne, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28; Monessen, 103.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28 (type 416 add ½¢); Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard & Coated Nails Base Col.	Woven Wire Fence 9-15½ ga. Base Col.	Fence Posts Base Col.	Single Loop Bale Ties Base Col.	Twisted Barbless Wire Base Col.	Gal. Barbed Wire Base Col.	Merch. Wire Ann'id. ¢/lb.	Merch. Wire Gal. (1) ¢/lb.
Alabama City-4	118	126	....	123	....	136	5.70	5.95
Aliquippa, Pa.-5	118	132	....	....	138	140	5.70	6.15
Atlanta-65	121	133	....	126	126	143	5.95	6.40
Bartonville-34	118	130	140	123	143	143	5.95	6.15
Buffalo-85	....	....	....	....	....	....	4.85	....
Cleveland-86	125	....	....	....	....	....	....	....
Cleveland-2	....	....	....	....	....	....	5.70	6.15
Crawfordsville-87	....	132	....	....	....	145	5.95	6.40
Donora, Pa.-2	118	130	....	123	....	140	5.70	6.15
Duluth-2	118	130	....	123	....	140	5.70	6.15
Fairfield, Ala.-11	118	130	....	123	....	136	5.70	6.15
Houston-83	126	138	....	....	....	148	6.10	6.55
Johnstown, Pa.-3	118	130	....	....	140	....	5.70	6.15
Joliet, Ill.-2	118	130	....	123	....	140	5.70	6.15
Kokomo, Ind.-30	120	132	....	125	138	138	5.80	6.05
Los Angeles-62	....	....	....	....	....	....	6.65	....
Kansas City-83	130	130	142	135	....	152	6.30	6.75
Minnequa-14	123	138	130	128	146	146	5.95	6.45
Monessen-18	124	135	....	....	....	145	5.95	6.40
Moline, Ill.-4	....	....	136	....	....	....	....	....
Palmer-88	....	....	....	....	....	....	....	....
Pittsburg, Cal.-24	137	149	....	147	156	160	6.65	6.80
Portsmouth-20	124	137	....	....	147	147	6.10	6.60
Rankin, Pa.-2	118	130	....	....	....	140	5.70	6.15
So. Chicago, Ill.-4	118	126	140	123	....	138	5.70	5.95
S. San Fran.-10	....	....	....	147	....	160	6.65	7.10
Sparrows Pt.-3	120	....	....	125	142	142	5.80	6.25
Sterling, Ill.-33	118	130	140	123	140	140	5.70	6.15
Struthers, Ohio-8	....	....	....	....	....	....	5.70	6.15
Terrance, Cal.-24	138	....	....	....	....	....	6.65	....
Worcester-2	124	....	....	....	....	....	6.00	6.45
Williamsport, Pa.-51	....	....	150	....	....	....	....	....

Cut Nails, carloads, base, $6.75 per 100 lb. (less 20¢ to jobbers) at Conshohocken, Pa., (26), Wareham, Mass. (53), Wheeling, W. Va., (15).

(1) Alabama City and So. Chicago do not include zinc extra.

CAST IRON WATER PIPE

	Per Net Ton
6 to 24-in., del'd Chicago	$105.30 to $108.80
6 to 24-in., del'd N. Y.	108.50 to 109.50
6 to 24-in., Birmingham	91.50 to 96.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less	$108.50 to $113.00

Class "A" and gas pipe, $5 extra; 4-in. pipe is $5 a ton above 6-in.

PIPE AND TUBING

Base discounts, f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD														SEAMLESS					
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½-3 In.		3½-4 In.	
	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.	Blk.	Gal.
STANDARD T. & C.																				
Sparrows Pt.-3	34.0	12.0	37.0	16.0	39.5	19.5	40.0	20.0	40.5	21.0	41.0	21.5	41.5	22.0	....	....	....	....	....	....
Cleveland-4	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Oakland-19	25.0	3.0	28.0	7.0	30.5	10.5	31.0	21.0	31.5	22.0	32.0	12.5	32.5	13.0	....	....	....	....	....	....
Pittsburgh-5	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.5	8.0	32.5	11.5	34.5	13.5
Pittsburgh-10	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
St. Louis-32	35.0	13.0	38.0	17.0	40.5	20.5	41.0	21.0	41.5	22.0	42.0	22.5	42.5	23.0	....	....	....	....	....	....
Sharon-90	36.0	13.0	39.0	17.0	41.5	20.0	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.0	....	....	....	....	....	....
Pittsburgh-88	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	....	32.5	....	34.5	....
Wheeling-15	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	....	....	....	....	....	....
Wheatland-89	36.0	14.0	39.0	17.0	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	36.0	14.0	39.0	18.0	41.5	21.5	42.0	22.0	42.5	23.0	43.0	23.5	43.5	24.0	29.5	9.5	32.5	12.5	34.5	14.5
EXTRA STRONG, PLAIN ENDS																				
Sparrows Pt.-3	33.5	13.0	37.5	17.0	39.5	20.5	40.0	21.0	40.5	22.0	41.0	22.5	41.5	23.0	....	....	....	....	....	....
Cleveland-4	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Oakland-19	24.5	4.0	28.5	18.0	30.5	11.5	31.0	12.0	31.5	13.0	32.0	13.5	32.5	14.0	....	....	....	....	....	....
Pittsburgh-5	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	29.0	7.5	33.0	12.0	36.0	18.5
Pittsburgh-10	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5
St. Louis-32	34.5	14.0	38.5	18.0	40.5	21.5	41.0	22.0	41.5	23.0	42.0	23.5	42.5	24.0	....	....	....	....	....	....
Sharon-90	35.5	14.0	39.5	18.0	41.5	21.0	42.0	21.5	42.5	22.0	43.0	22.5	43.5	23.0	....	....	....	....	....	....
Pittsburgh-88	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	....	33.0	....	36.5	....
Wheeling-15	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	....	....	....	....	....	....
Wheatland-89	35.5	13.5	39.5	17.5	41.5	19.5	42.0	20.5	42.5	21.0	43.0	21.5	43.5	22.5	....	....	....	....	....	....
Youngstown-6	35.5	15.0	39.5	19.0	41.5	22.5	42.0	23.0	42.5	24.0	43.0	24.5	43.5	25.0	29.0	10.0	33.0	14.0	36.5	17.5

Galvanized discounts based on zinc at 17¢ per lb, East St. Louis. For each 1¢ change in zinc, discounts vary as follows: ½ in., ¾ in., and 1 in., 1 pt.; 1¼ in., 1½ in., 2 in., ¾ pt.; 2½ in., 3 in., ½ pt. Calculate discounts on even cents per lb of zinc, i.e., if zinc is 16.51¢ to 17.50¢ per lb, use 17¢. Jones & Laughlin discounts apply only when zinc price changes 1¢.

Threads only, buttweld and seamless, 1 pt. higher discount. Plain ends, buttweld and seamless, 3 in. and under, 3½ pts. higher discount. Buttweld jobbers' discount, 5 pct.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Axles	Screw Spikes	Tie Plates	Track Bolts Untreated
Bessemer-1	3.60	4.00	4.70	....	....	....	....	....
Chicago-4	....	....	....	6.15	....	....	....	....
Ensley-11	3.60	4.00	....	....	....	....	....	....
Fairfield-11	....	4.00	4.40	....	....	8.60	4.50	....
Gary-1	3.60	4.00	....	....	....	....	4.50	....
Ind. Harbor-8	3.60	....	4.70	6.15	5.25	8.60	4.50	....
Johnstown-3	....	4.00	....	....	5.60	8.60	....	....
Joliet-1	....	4.00	4.70	....	....	....	....	....
Kansas City-83	....	....	....	6.40	....	....	....	....
Lackawanna-3	3.60	4.00	4.70	....	....	8.60	4.50	....
Lebanon-3	....	....	....	6.15	....	....	....	9.85
Minnequa-14	3.60	4.50	4.70	6.15	....	8.60	4.50	9.85
Pittsburgh-77	....	....	....	....	....	9.35	....	9.85
Pittsburgh-78	....	....	....	....	....	....	....	9.85
Pittsburgh-5	....	....	....	6.15	....	....	....	....
Pittsburg-24	....	....	....	....	....	....	4.65	....
Seattle-62	....	....	....	6.10	....	....	4.35	....
Steelton-3	3.60	....	4.70	....	....	....	4.50	....
Struthers-6	....	....	....	6.15	....	....	....	....
Terrance-24	....	....	....	....	....	....	4.65	....
Youngstown-4	....	....	....	6.15	....	....	....	....

Track Bolts, heat treated, to railroads, 9.85¢ per lb.

BOILER TUBES

Seamless steel, electric welded commercial boiler tubes, locomotive tubes, minimum wall, per 100 ft at mill, c.l. lots, cut lengths 10 to 24 ft.

OD gage in in.	BWG	Seamless H.R.	Seamless C.D.	Electric H.R.	Electric C.D.	Weld C.D.
2	13	$22.67	$26.66	$21.99	$25.86	....
2½	12	30.48	35.84	29.57	34.76	....
3	12	33.90	39.90	32.89	38.80	....
3½	11	42.37	49.89	41.10	48.39	....
4	10	52.60	61.88	51.03	60.02	....

Pittsburgh Steel add, H-R: 2 in., 62¢; 2½ in., 84¢; 3 in., 92¢; 3½ in., $1.17; 4 in., $1.45. Add, C-R: 2 in., 74¢; 2½ in., 99¢; 3 in., $1.10; 3½ in., $1.37; 4 in., $1.70.

FLUORSPAR

Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net: Effective CaF_2 content:

70% or more	$43.00
60% or less	40.00

WAREHOUSES

Base price, f.o.b., dollars per 100 lb. *(Metropolitan area delivery, add 20¢ except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul, add 15¢; Memphis, add 10¢; Philadelphia, add 25¢; New York, add 30¢).

Cities	Sheets			Strip		Plates	Shapes	Bars		Alloy Bars			
	Hot-Rolled	Cold-Rolled (15 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled A 4615 As rolled	Hot-Rolled A 4140 Annealed	Cold-Drawn A 4615 As rolled	Cold-Drawn A 4140 Annealed
Baltimore	5.80	6.84	7.49[2]–8.07	6.04	.....	5.80	6.14	6.04	6.84–6.89	10.24	10.54	11.89	12.19
Birmingham*	5.60	6.40	6.75	5.55	.....	5.95	5.70	5.55	.....	.....	.....	.....	.....
Boston	6.20	7.00–7.25	7.74–8.29	6.15	8.50[4]	6.48–6.78	6.20	6.05	6.79–6.84	10.25	10.55	11.90–12.00	12.20–12.30
Buffalo	5.60	6.40	7.74–8.09	5.66	.....	6.05	5.80	5.60	6.40–6.45	10.15–10.65	10.45	11.80	11.95–12.10
Chicago	5.60	6.40	7.75	5.55	.....	5.80	5.70	5.55	6.30	9.60	10.10	11.45	11.75
Cincinnati*	5.87	6.44	7.39	5.80	.....	6.19	6.09	5.80	6.61	10.15	10.45	11.80	12.10
Cleveland	5.60	6.40	8.10	5.69	6.90	5.92	5.82	5.57	6.40	9.91	10.21	11.56	11.86
Detroit	5.78	6.53	7.89	5.94	.....	5.99	6.09	5.84	6.56	10.11	10.41	11.76	12.06
Houston	7.00	8.25	.....	.....	.....	6.85	6.50	6.65	9.35	10.35	11.25	.....	12.75
Indianapolis, del'd.	6.00	6.80	8.15	5.95	.....	6.20	6.10	5.95	6.80	.....	.....	.....	.....
Kansas City	6.00	6.80	7.45	6.15	7.50	6.40	6.30	6.15	7.00	10.40	10.70	12.05	12.35
Los Angeles	6.35	7.90	8.85	6.40	9.45[5]	6.40	6.35	6.35	8.20	11.30	11.30	13.20	13.50
Memphis*	6.33–6.38	7.08–7.18	.....	6.33–6.38	.....	6.43–8.02	6.33–6.48	6.06–6.33	7.16–7.32	.....	.....	.....	.....
Milwaukee	5.74	6.54	7.89	5.69–6.59	.....	5.94	5.84	5.69	6.44–6.54	9.94	10.24	11.59	11.89
New Orleans*	5.70	6.58	.....	5.75	7.25	5.95	5.75	5.75	7.30	.....	.....	.....	.....
New York*	5.67–5.97	7.19[5]–7.24[1]	8.14[2]	6.29–6.99	8.63[4]	6.28–6.58	6.10	6.12	6.99	10.05–10.15	10.35–10.45	11.70–11.80	12.10–12.20
Norfolk	6.50[3]	.....	.....	.....	.....	6.50[3]	6.60[3]	6.55[3]	.....	.....	.....	.....	.....
Philadelphia*	5.90	6.80	8.00	6.10	.....	6.05	5.90	6.05	6.86	9.90	10.20	.....	.....
Pittsburgh	5.60	6.40	7.75	5.65–5.95	.....	5.75	5.70	5.55	6.15	9.80	10.10	11.45	11.75
Portland	6.60–7.55	8.95	8.50–9.10	7.30	.....	6.80	6.95	6.90	.....	.....	12.15	.....	.....
Salt Lake City	7.95	.....	9.70–10.50[2]	8.70–8.75	.....	8.05	6.75–8.30	7.95–8.65	9.00	.....	.....	.....	.....
San Francisco*	6.65	8.05[2]	8.55–8.90[2]	6.60	9.45[4]	6.50	6.45	6.45	8.20	11.30	11.30	13.20	13.20–13.50
Seattle	7.05	8.60	9.20	9.05	.....	6.75	6.85	6.75	9.05	.....	.....	.....	.....
St. Louis	5.80–5.85	6.65	8.00	5.80	8.00[4]–8.25	6.13	6.03	5.80	6.55–6.65	10.05	10.35	11.70	12.00
St. Paul*	6.16	6.96	8.31	6.11	.....	6.36	6.26	6.11	6.96	10.36	10.66	12.01	12.31

BASE QUANTITIES (Standard unless otherwise keyed): Cold finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb. All others; 2000 to 9999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity.

EXCEPTIONS: (1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 400 to 1999 lb; (4) 6000 lb and over; (5) 1500 to 9999 lb.; (6) 2000 to 5999 lb.

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Blast Furnace Silvery	Low Phos. Charcoal
Bethlehem-3	54.00	54.50	55.00	55.50	.....	.....	.....
Birmingham-4	48.38	48.88	.....	.....	.....	.....	.....
Birmingham-91	48.38	48.88	.....	.....	.....	.....	.....
Birmingham-92	48.38	48.88	.....	.....	.....	.....	.....
Buffalo-4	52.00	52.50	53.00	.....	.....	.....	.....
Buffalo-93	52.00	52.50	53.00	.....	.....	63.75	.....
Chicago-94	52.00	52.50	52.50	53.00	.....	.....	.....
Cleveland-2	52.00	52.50	52.50	53.00	57.00	.....	.....
Cleveland-4	52.00	52.50	52.50	.....	.....	.....	.....
Daingerfield, Tex.-95	48.00	48.50	48.50	.....	.....	.....	.....
Duluth-94	52.00	52.50	52.50	53.00	.....	.....	.....
Erie-94	52.00	52.50	52.50	53.00	.....	.....	.....
Everett, Mass.-96	.....	53.25	53.75	.....	.....	.....	.....
Fontana-19	56.00	56.50	.....	.....	.....	.....	.....
Geneva, Utah-16	52.00	52.50	52.50	53.00	.....	.....	.....
Granite City, Ill.-102	53.90	54.40	54.90	.....	.....	.....	.....
Hubbard, O.-6	52.00	52.50	52.50	.....	.....	.....	.....
Ironton, Utah-16	52.00	52.50	.....	.....	.....	.....	.....
Jackson, O.-97,98	.....	.....	.....	.....	.....	62.50	.....
Lyle, Tenn.-101	.....	.....	.....	.....	.....	.....	66.00
Monessen-18	54.00	.....	.....	.....	.....	.....	.....
Neville Island-99	52.00	52.50	52.50	53.00	.....	.....	.....
Pittsburgh-1	52.00	.....	.....	53.00	.....	.....	.....
Sharpsville-100	52.00	52.50	52.50	53.00	.....	.....	.....
Steelton-3	54.00	54.50	55.00	55.50	60.00	.....	.....
Swedeland-26	56.00	56.50	57.00	57.50	.....	.....	.....
Toledo-94	52.00	52.50	52.50	53.00	.....	.....	.....
Troy, N. Y.-4	54.00	54.50	55.00	.....	60.00	.....	.....
Youngstown-6	52.00	52.50	52.50	53.00	.....	.....	.....

DIFFERENTIALS: Add 50¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct), 50¢ per ton for each 0.50 pct manganese over 1 pct, $2 per ton for 0.5 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Subtract 38¢ per ton for phosphorus content over 0.70 pct. Silvery iron: Add $1.50 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 17 pct. $1 per ton for 0.75 pct or more phosphorus, manganese as above. Bessemer ferrosilicon prices are $1 over comparable silvery iron.

REFRACTORIES

Fire Clay Brick (*F.o.b. works*) *Carloads, Per 1000*

First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add $5)	$94.60
No. 1 Ohio	85.00
Sec. quality, Pa., Md., Ky., Mo., Ill.	88.00
No. 2 Ohio	79.20
Ground fire clay, net ton, bulk (except Salina, Pa., add $1.50)	13.75

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$94.60
Childs, Pa.	99.00
Hays, Pa.	100.10
Chicago District	104.50
Western Utah and Calif.	111.10
Super Duty, Hays, Pa., Athens, Tex., Chicago	111.10
Silica cement, net ton, bulk, Eastern (except Hays, Pa.)	16.50
Silica cement, net ton, bulk, Hays, Pa.	18.70
Silica cement, net ton, bulk, Ensley, Ala.	17.60
Silica cement, net ton, bulk, Chicago District	17.60
Silica cement, net ton, bulk, Utah and Calif.	24.70

Chrome Brick *Per Net Ton*

Standard chemically bonded, Balt., Chester	$82.00

Magnesite Brick

Standard, Baltimore	$104.00
Chemically bonded, Baltimore	93.00

Grain Magnesite *St. ⅝-in. grains*

Domestic, f.o.b. Baltimore, in bulk fines removed	$62.70
Domestic, f.o.b. Chewelah, Wash., in bulk	36.30
in sacks	41.80

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢	$13.00

COKE

	Net Ton
Furnace, beehive (f.o.b. oven) Connellsville, Pa.	$14.00 to $14.50
Foundry, beehive (f.o.b. oven) Connellsville, Pa.	$17.00 to $17.50
Foundry, oven coke	
Buffalo, del'd	$26.69
Chicago, f.o.b.	23.00
Detroit, f.o.b.	24.00
New England, del'd	24.80
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	22.70
Swedeland, Pa., f.o.b.	22.60
Painesville, Ohio, f.o.b.	24.00
Erie, Pa., f.o.b.	23.50
Cleveland, del'd	25.72
Cincinnati, del'd	25.06
St. Paul, f.o.b.	22.50
St. Louis,	25.40
Birmingham, del'd	21.69
Neville Island	23.00

LAKE SUPERIOR ORES

(51.50% *Fe; natural content, delivered lower lake ports*)

	Per gross ton
Old range, bessemer	$8.70
Old range, nonbessemer	8.55
Mesabi, bessemer	8.45
Mesabi, nonbessemer	8.30
High phosphorus	8.30

After adjustments for analyses, prices will be increased or decreased as the case may be for increases or decreases after Dec. 2, 1950, in lake vessel rates, upper lake rail freights, dock handling charges and taxes thereon.

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	5.35¢
0.41 to 0.60 carbon	6.80¢
0.61 to 0.80 carbon	7.40¢
0.81 to 1.05 carbon	9.35¢
1.06 to 1.35 carbon	11.65¢

Worcester, add 0.30¢; Sharon, Carnegie, New Castle, add 0.35¢; Detroit, 0.26 to 0.40 carb., add 25¢; other grades add 15¢. New Haven, 0.26 to 0.40 carb., add 50¢; other grades add 5¢.

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Base discount, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)

Machine and Carriage Bolts

	Pct Off List Less Case	C.
½ in. & smaller x 6 in. & shorter	15	28½
9/16 in. & ⅝ in. x 6 in. & shorter	18½	30½
¾ in. & larger x 6 in. & shorter	17½	29½
All diam. longer than 6 in.	14	27½
Lag, all diam. x 6 in. & shorter	23	35
Lag, all diam. longer than 6 in.	21	33
Plow bolts	34	....

Nuts, Hot Pressed, Cold Punched—Sq

	Pct Off List Less Keg (Reg.)	K.	Less Keg (Hvy.)	K.
½ in. & smaller.	15	28½	15	28½
9/16 in. & ⅝ in..	12	25	6½	21
¾ in. to 1½ in. inclusive	9	23	1	16½
1⅝ in. & larger.	7½	22	1	16½

Nuts, Hot Pressed—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	16½	29½	6½	21
¾ in. to 1½ in. inclusive	13	25	2	17½
1⅝ in. & larger.	8½	23	2	17½

Nuts, Cold Punched—Hexagon

½ in. & smaller.	26	37	22	34
9/16 in. & ⅝ in..	23	35	17½	30½
¾ in. to 1½ in. inclusive	19½	31½	12	25
1⅝ in. & larger.	12	25	6½	21

Nuts, Semi-Finished—Hexagon

	Reg.		Hvy.	
½ in. & smaller.	35	45	28½	39½
9/16 in. & ⅝ in..	29½	40½	22	34
¾ in. to 1½ in. inclusive	24	36	15	28½
1⅝ in. & larger.	13	26	8½	23
	Light			
7/16 in. & smaller	35	45		
½ in. thru ⅝ in.	28½	39½		
¾ in. to 1½ in. inclusive	26	37		

Stove Bolts — *Pct Off List*

Packaged, steel, plain finished	56—10
Packaged, plated finish	41—10
Bulk, plain finish**	67*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets

	Base per 100 lb.
½ in. & larger	$7.85
	Pct Off List
7/16 in. & smaller	36

F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa.

Cap and Set Screws

(In bulk)

	Pct Off List
Hexagon head cap screws, coarse or fine thread, ¼ in. thru ⅝ in. x 6 in., SAE 1020, bright	54
¾ in. thru 1 in. up to & including 6 in.	48
¼ in. thru ⅝ in. x 6 in. & shorter high C double heat treat	46
¾ in. thru 1 in. up to & including 6 in.	41
Milled studs	35
Flat head cap screws, listed sizes	16
Fillister head cap, listed sizes	34
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	53

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	21.60
Ton lots	23.75
Less ton lots	25.25

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.05
Less ton lots	31.85

ELECTRODES

Cents per lb., f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb.
	GRAPHITE	
17, 18, 20	60, 72	17.85
8 to 16	48, 60, 72	17.85
7	48, 60	19.57
6	48, 60	20.95
4, 5	40	21.50
3	40	22.61
2½	24, 30	23.15
2	24, 30	25.36
	CARBON	
40	100, 110	8.03
35	65, 110	8.03
30	65, 84, 110	8.03
24	72 to 104	8.03
20	84, 90	8.03
17	60, 72	8.03
14	60, 72	8.57
10, 12	60	8.84
8	60	9.10

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct, Coatesville, Pa. (21)	*29.5	
Washgtn, Pa. (39)	*29.5	
Claymont, Del. (29)	*28.00	
Conshohocken, Pa. (26)		*24.00
New Castle, Ind. (55)	*26.50	*25.50
Nickel-carbon 10 pct Coatesville (21)	32.5	
Inconel-carbon 10 pct Coatesville (21)	40.5	
Monel-carbon 10 pct Coatesville (21)	33.5	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)		77.00
Aluminized steel sheets, hot dip, Butler, Pa. (7)		7.75

*Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	$1.235
18	4	1	—	5	$1.86
18	4	2	—	—	$1.38
1.5	4	1.5	8	—	78.5¢
6	4	2	6	—	.87¢

High-carbon chromium	63.5¢
Oil hardened manganese	35¢
Special carbon	32.5¢
Extra carbon	27¢
Regular carbon	23¢

Warehouse prices on and east of Mississippi are 3¢ per lb higher. West of Mississippi, 5¢ higher.

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

Swedish sponge iron c.l.f. New York, ocean bags	7.4¢ to 9.0¢
Canadian sponge iron, del'd, in East	10.00¢
Domestic sponge iron, 98+% Fe, carload lots	9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+% Fe	36.0¢ to 39.5¢
Electrolytic iron unallealed, minus 325 mesh, 99+% Fe	48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+% Fe.	63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+% Fe	70.0¢ to $1.35
Aluminum	29.00¢
Brass, 10 ton lots	30.00¢ to 33.25¢
Copper, electrolytic	10.25¢ plus metal value
Copper, reduced	10.00¢ plus metal value
Cadmium, 100-199 lb.	95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity	$3.50
Lead	6.5¢ plus metal value
Manganese	52.00¢
Molybdenum, 99%	$2.65
Nickel, unannealed	75.5¢
Nickel, annealed	81.5¢
Nickel, spherical, unannealed	78.5¢
Silicon	34.00¢
Solder powder	6.5¢ to 8.5¢ plus met. value
Stainless steel, 302	75.00¢
Tin	11.00¢ plus metal value
Tungsten, 99%	$4.15
Zinc, 10 ton lots	20.50¢ to 23.85¢

ELECTRICAL SHEETS

22 Ga. H-R cut lengths

F.o.b. Mill Cents Per Lb.	Armature	Elec.	Motor	Dynamo	Transf. 72	Transf. 65	Transf. 58
Beech Botton-15	....	7.25	8.50	9.30	9.85	10.40	11.10
Brackenridge-28	....	7.25	8.50	9.30	9.85	....	....
Follansbee-63	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Granite City-22	....	7.95	9.20	....	....	....	....
Ind. Harbor-3	6.75	7.25	....	....	....	....	....
Mansfield-75	7.25	7.75	9.00	9.80	....	....	....
Niles, O.-64	7.05	7.55	....	....	....	....	....
Vandergrift-1	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Warren, O.-4	6.75	7.25	8.50	9.30	9.85	10.40	11.10
Zanesville-7	8.75	7.25	8.50	9.30	9.85	10.40	11.10

Transformer 52, 80¢ above Transformer 58.

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max. Si.)

0.06% C	30.50	0.20% C	29.60
0.10% C	30.00	0.50% C	29.25
0.15% C	29.75	1.00% C	29.00
2.00% C			28.75
65-69% Cr, 4-9% C			22.00
62-66% Cr, 4-6% C, 6-9% Si.			22.85

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

Chromium Metal

Contract prices, per lb chromium contained, packed, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% Max. C.	$1.09
0.50% max. C.	1.05
.00 min. C.	1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 21.75¢ per lb of contained Cr plus 12.00¢ per lb of contained Si.

Bulk 1-in. x down, 21.90¢ per lb contained Cr plus 12.20¢ per lb contained Si.

Calcium-Silicon

Contract price per lb of alloy, dump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe.

Carloads	19.00
Ton lots	22.10
Less ton lots	23.00

Calcium-Manganese—Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads	20.00
Ton lots	22.30
Less ton lots	23.30

CMSZ

Contract price, cents per lb of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 18-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C.

Ton lots	20.75
Less ton lots	22.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 38-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	16.50¢
Less ton lots	17.75¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	18.00¢
Ton lots to carload packed	19.00¢
Less ton lots	20.50¢

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, ½ in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50

TIPS ON MACHINING Stainless Steel for Higher Production AT LOWER COST

DATA!

Page B-3

AUSTENITIC STAINLESS STEELS (Cont.)

Wide Variance In Machinability

Types such as 303 are considered free-machining 18-8 grades, while various other 18-8 grades such as types 321 and 347 are extremely difficult to machine. These latter types are especially serviceable at elevated temperatures and will be found to be used frequently for aircraft parts, particularly jet engine parts where extremely high heat may be encountered, and high strength is essential.

Cutting Fluids for Austenitic Stainless Steels

For the machining of all grades of stainless steel the presence of active or effective sulphur in the cutting fluid in varying amounts is vitally important as this quality tends to reduce the work-hardening characteristics and tendency of these materials to pick-up and weld to tool surfaces.

It should be pointed out that the severity of the machine operation has a direct bearing on cutting fluid application. Operations such as tapping, threading and broaching where slower speeds and heavier cuts are usually in evidence, require a cutting fluid high in active sulphur and factors of lubricity.

Generally speaking, however, the free-machining grades of austenitic stainless steel demand a balanced amount of active sulphur while types such as 347 require the maximum possible amount to prevent chip weld and provide smooth finishes.

PROOF!

STUART'S ThredKut 99 FOR STAINLESS

A Wisconsin manufacturer recently tried twelve different heavy duty cutting fluids for the tapping of type 310 stainless steel. One of the oils that failed sold for 45c per pound. Production with the best of these products amounted to 50 holes per tap. With Stuart's THREDKUT 99, production was increased to 550 holes per tap.

D.A. Stuart Oil CO.

2737 S. Troy Street, Chicago 23, Illinois

FERROALLOYS

Ferromanganese

78-82% Mn. maximum contract base price, gross ton, lump size.

F.o.b. Niagara Falls, Alloy, W. Va., Welland, Ont., Ashtabula, O.	$185
F.o.b. Johnstown, Pa.	$187
F.o.b. Sheridan, Pa.	$185
F.o.b. Etna, Clairton, Pa.	$188

$2.00 for each 1% above 82% Mn, penalty, $2.15 for each 1% below 78%.

Briquets—Cents per pound of briquet, delivered, 66% contained Mn.

Carload, bulk	10.95
Ton lots	12.55

Spiegeleisen

Contract prices gross ton, lump, f.o.b.

	16-19% Mn 3% max. Si	19-21% Mn 3% max. Si
Palmerton, Pa.	$74.00	$75.00
Pgh. or Chicago	74.00	75.00

Manganese Metal

Contract basis, 2 in. x down, cents per pound of metal, delivered.

96% min. Mn, 0.2% max. C, 1% max. Si, 2% max. Fe.

Carload, packed	29.75
Ton lots	31.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, cents per pound.

Carloads	28
Ton lots	30
Less ton lots	32

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract price, carloads, lump, bulk, delivered, per lb. of contained Mn. 19.15¢

Calcium Metal

Eastern zone contract prices, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
Less ton lots	2.40	3.30	4.55

Silicomanganese

Contract basis, lump size, cents per pound of metal, delivered, 65-68% Mn, 18-20% Si, 1.5% max. C. For 2% max. C, deduct 0.2¢.

Carload bulk	9.90
Ton lots	11.55
Briquet, contract basis carlots, bulk delivered, per lb of briquet	11.15
Ton lots	11.75

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $92.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $83.00. Add $1.00 per ton for each additional 0.50% Si up to and including 18%. Add $1.00 for each 0.50% Mn over 1%.

Silicon Metal

Contract price, cents per pound contained Si, lump size, delivered, for ton lots packed.

96% Si, 2% Fe	21.70
97% Si, 1% Fe	22.10

Silicon Briquets

Contract price, cents per pound of briquet bulk, delivered, 40% Si, 1 lb Si briquets.

Carload, bulk	6.95
Ton lots	8.55

Electric Ferrosilicon

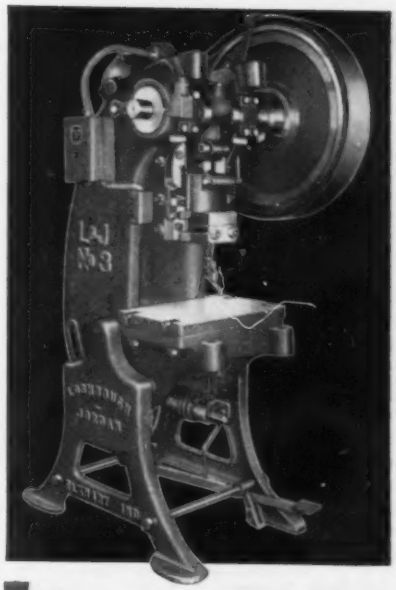
Contract price, cents per pound contained Si, lump, bulk, carloads, delivered.

25% Si	19.00	75% Si	14.30
50% Si	12.40	85% Si	15.55
90-95% Si			17.50

Low-Carbon Ferromanganese

Contract price, cents per pound Mn contained, lump size, del'd, Mn 85-90%.

	Carloads	Ton	Less
0.7% max. C, 0.06% P, 90% Mn	26.25	28.10	29.30
0.07% max. C	25.75	27.60	28.80
0.15% max. C	25.25	27.10	28.30
0.30% max. C	24.75	26.60	27.80
0.50% max. C	24.25	26.10	27.30
0.75% max. C, 7.00% max. Si	21.25	23.10	24.30



L&J PRESSES

FOR FAST, LOW-COST PRODUCTION

It's the speed, accuracy and dependability of L & J Presses that enable them to produce low-cost stampings and drawings. You will find that this efficiency can be profitably utilized in the manufacture of a wide variety of parts.

Their rugged construction gives you longer die life... closer tolerances... better work... less maintenance. If your jobs are within the capacities of these quality-built presses, it will pay you to find out how they can give you better production.

L&J O.B.I. Presses are made in 12 models—back geared and plain flywheel types—with capacities from 6 to 80 tons.

Write for literature.

SPECIFICATIONS

No. 3 Plain Flywheel Press

(Illustrated)

22-Ton Capacity

2½" Standard Stroke

120-135 Strokes per Minute

8¼" or 10¼" Die Space

(Bed to slide, stroke down, adjustment up.)

L&J PRESS CORP.

1623 Sterling Ave.

ELKHART, INDIANA

News about

UNICHROME

Trade Mark

COATINGS for METALS

METALLIC • ORGANIC
DECORATIVE • PROTECTIVE

Paint jobs last longer despite severe corrosives

Users of Ucilon* Protective Coatings report they are not only conserving equipment with maximum corrosion protection, but stretching the time between paint jobs as well. That's because Ucilon Coatings resist most acids, alkalies, salt solutions, moisture, petroleum products, corrosive fumes, alcohols and other strong chemicals.

*Trade Mark

Dip Finishes give extra rust-resistance to zinc plated steel products

In defense work, or as a replacement finish, Unichrome Dips for zinc can help you. Different solutions produce a chromium-like clear, an iridescent yellow, a glossy dense black, or an olive drab finish – all corrosion-resistant. To produce them on steel, you use a supply-stretching .0003" of zinc plate.

Plastisol-clad metals last in corrosive service

By applying a Unichrome "Series 4000" Compound, you can often make cheaper, lighter, or *available* metals serve in place of more expensive alloys.

For these plastisol compounds have what it takes to withstand severely corrosive conditions. Namely ... high chemical resistance of the vinyls ... up to 3/16" film thickness for maximum chemical and physical endurance ... flexibility to absorb wear and abuse.

Sprayed or dipped in a single application, Unichrome Plastisol Compounds are then baked at 350° F.

UNITED CHROMIUM, INCORPORATED

100 East 42nd St., New York 17, N. Y.
Detroit 20, Mich. • Waterbury 20, Conn.
Chicago 4, Ill. • Los Angeles 13, Calif.
In Canada:
United Chromium Limited, Toronto, Ont.

Other Ferroalloys

Alsifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.
- Carload ..... 9.90¢
- Ton lots ..... 11.30¢

Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo. $1.15

Ferrocolumbium, 50-60%, 2 in x D, contract basis, delivered, per pound contained Cb.
- Ton lots $4.90
- Less ton lots 4.95

Ferro - Tantalum - columbium, 20% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta $3.75

Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo $1.32

Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $3 unitage, per gross ton $65.00
10 tons to less carload 75.00

Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots $1.55

Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $177.00

Ferrotungsten, standard, lump or ¼ x down, packed, per pound contained W, 5 ton lots, delivered $3.25

Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.
- Openhearth ..... $3.00-$3.05
- Crucible 3.10- 3.15

High speed steel (Primos) 3.25

Molybdic oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa. $1.14
bags, f.o.b. Washington, Pa., Langeloth, Pa. $1.13

Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound
- Carload, bulk lump ..... 14.50¢
- Ton lots, bulk lump ..... 15.75¢
- Less ton lots, lump ..... 16.25¢

Vanadium pentoxide, 88-92% V_2O_5 contract basis, per pound contained V_2O_5 ..... $1.28

Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.
- ton lots ..... 21.00¢

Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.
- carload, bulk ..... 7.00¢

Boron Agents

Contract prices per lb of alloy, del.

Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B $5.25

Bortam, f.o.b. Niagara Falls
- Ton lots, per pound ..... 45¢
- Less ton lots, per pound ..... 50¢

Carbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4.5-7.5%, f.o.b. Suspension Bridge, N. Y., freight allowed.
- Ton lots, per pound ..... 10.00¢

Ferroboron, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots $1.20
F.o.b. Wash., Pa.; 100 lb, up
- 10 to 14% B ..... .75
- 14 to 19% B 1.20
- 19% min. B 1.50

Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.
- No. 1 ..... $1.00
- No. 6 ..... 68¢
- No. 79 ..... 50¢

Manganese—Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.
- Ton lots $1.46
- Less ton lots 1.57

Nickel—Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.
- Less ton lots $1.80

Silcaz, contract basis, delivered.
- Ton lots ..... 45.00¢

Precision Quality!

Immediate Shipment

GORDON THERMOCOUPLE EXTENSION LEAD WIRE

The precision quality of Gordon Thermocouple Extension Lead Wire is the result of continued experience since 1915 in careful selection and inspection that meets rigid insulation requirements and Bureau of Standards specifications.

Gordon's Chicago and Cleveland plants carry complete stocks of Thermocouple Extension Lead Wire for practically every application. (See illustrations below.) These are good reasons why your order gets immediate delivery of a QUALITY product. ORDER NOW! No delays. Prices available on request.

CHROMEL-ALUMEL, Cat. No. 1231(3-A), 14 ga., STRANDED-DUPLEX, each wire felted asbestos, Asbestos-yarn braid overall.

FOR PLATINUM THERMOCOUPLES, Cat. No. 1225, 16 ga., STRANDED-DUPLEX, each wire felted asbestos, Asbestos-yarn braid overall.

CHROMEL-ALUMEL, Cat. No. 1234, 14 ga., SOLID-DUPLEX, each wire enamel, felted asbestos, Asbestos-yarn braid overall.

IRON-CONSTANTAN, Cat. No. 1236-C, 14 ga., STRANDED-DUPLEX, each wire felted asbestos, Asbestos-yarn braid overall.

COPPER-CONSTANTAN, Cat. No. 1235-A, 14 ga., SOLID-DUPLEX, each wire cotton, rubber, weatherproof braid, lead sheath overall.

GORDON SERVICE

CLAUD S. GORDON CO.

Manufacturers & Distributors

Thermocouple Supplies • Industrial Furnaces & Ovens
Pyrometers & Controls • Metallurgical Testing Machines

Dept. 16 • 3000 South Wallace St., Chicago 16, Ill.
Dept. 16 • 2035 Hamilton Ave., Cleveland 14, Ohio

METAL STAMPINGS · WIRE FORMS
Just a few of the more than 7000 catalog items we manufacture
What do YOU need?
EASTERN TOOL & MFG. CO.
General Office: BELLEVILLE 9, N. J.

THE ULTIMATE IN PRECISION CASTINGS

Intricate precision castings made from frozen mercury patterns assure you of soundness — accuracy — close tolerances — 60-80 micro finish and minimum machining in size ranges not available by conventional casting methods. All ferrous and non-ferrous metals. Inquiries invited. Brochure on request.

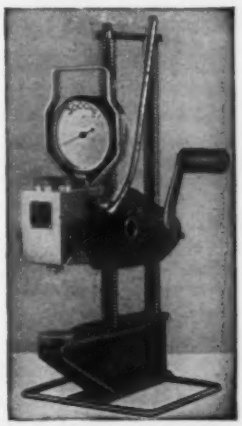
MERCAST PROCESS
ALLOY PRECISION CASTINGS COMPANY
EAST 45th ST. AND HAMILTON AVE. • CLEVELAND 14, OHIO

WHO CARES
about the manhours lost when fasteners aren't accurately made That's why
Wm. H. Ottemiller Co.
of YORK, PENNA.
has acquired such a reputation for making the finest in:
Cap Screws • Set Screws • Coupling Bolts • Milled Studs
Next time you order—be wise—
SPECIFY Ottemiller

PERFORATED METALS
FOR ALL INDUSTRIAL USES
•
PERFORATIONS IN HEAVY PLATES
ARCHITECTURAL GRILLES
DIAMOND MFG. CO.
BOX 28 WYOMING, PA.
WRITE FOR CATALOG 35

WANTED *Most* FOR HIGH ACCURACY STAMPING OPERATIONS
V&O LONG SLIDE *Precision* POWER PRESSES
Available in sizes from 3 to 105-ton capacity.
Write for Catalog
THE V&O PRESS COMPANY
DIVISION OF HARTFORD-EMPIRE COMPANY
Builders of Precision POWER PRESSES and FEEDS
Since 1889 HUDSON, N.Y.

THE KING PORTABLE BRINELL
A hardness tester particularly adapted for use on CASTINGS and FORGINGS
Puts an actual load of 3000kg on a 10mm ball.
Throat, 4" deep.
Gap, 10" high.
Weight, 26 lbs.
Can be used in any position—even upside down.
Equally accurate as portable or stationary equipment.
Test head removable for testing larger pieces beyond the capacity of the standard base.
ANDREW KING
524 Broad Acres Rd., Narberth, Penna.



Warehouse Specialists in STEEL TUBING exclusively
Seamless and Welded
Stainless, Alloy and Carbon Steels
For Mechanical and Pressure Use
TUBE DISTRIBUTORS CO., INC.
148 GREEN STREET, BROOKLYN 22, N. Y., EVergreen 9-6000

11

Got the habit of reading page 11? Newsfront is there EVERY week. Designed to save you time and keep you up to date on what's new in the industry.

IT PAYS TO READ IRON AGE ADS TOO.

REED ENGINEERING COMPANY
MODERN METALWORKING MACHINES
1006 W. FAIRVIEW
CARTHAGE, MO.
PLATE BENDING ROLLS
24 MODELS, RANGING FROM 3 FT.x14 GA. TO 8 FT.x¼ IN. CAPACITY
FEATURING
★ RUGGED, ALL-STEEL CONSTRUCTION
★ SILENT WORM GEAR DRIVE
★ BRONZE BEARINGS
MODEL 450
WRITE FOR BULLETIN 76
BENDING ROLLS ★ TURNING ROLLS
SPECIAL MACHINES & FIXTURES
WELDING FIXTURES ★ OFFSET & CONTOUR FORMERS

CONSIDER GOOD USED EQUIPMENT FIRST

AIR COMPRESSORS

975 cu. ft. Worthington 17"x10½"x12", With 150 H.P. Synch. Motor 440/3/60. 100# Pressure

1042 cu. ft. Ingersoll Rand XCB2 20" x 12"x16", With 200 H.P. Synch. Motor 440/3/60. 100# Pressure

BENDING ROLL

26' Southwark Pyramid Type Plate Bending Roll 24" Diameter Top Roll, 16" Diameter Bottom Rolls, Power Elevation of Top Roll. Elec. Equipment Included

CRANE TROLLEY

50 ton Harnischfeger Trolley and Hoist Current 220/3/60 with G.E. Controllers Trolley Gauge 115", Trolley Rail to top of Trolley 51¼"

FURNACES—MELTING

10 ton Heroult Electric Melting Furnace, With 4000 KVA Penna Transformer 3 phase, 60 cycle, 25,000 volt Primary, 250/92 Volt Secondary

HAMMERS—STEAM DROP

8000 lb. Chambersburg Steam Drop Hammer. 20 to 1 Steel Anvil (two piece) Safety Cap Cylinder

MILLING MACHINE—PLANER TYPE

56" x 30" x 18' Ingersoll Adustable Rail Slab Milling Machine. Equipped with Trabohn Coolant Pump and 75 H.P. G.E. Induction A.C. Motor

PRESS—HYDRAULIC FORGING

1000 ton United Steam Hydraulic Forging Press Complete with Accumulator, Intensifier, Tools and 8000 lb. Alliance Straight Line Floor Type Manipulator

PRESS—TRIMMING

No. 58 Bliss-Consolidated, With Side Trimming Arm. Approx. Stroke 8", Top of Bolster 54" x 32", Motor Driven, Elecl. Equipment Included

PULVERIZER

Babcock & Wilcox Size E32, Class 221-BA Pulverizer. Complete with Table Feeder, Pulverizer Fan, Elecl. Equipt. Capable of grinding 7525 lbs. coal per hr.

ROLLING MILL

23" x 60" Mackintosh Hemphill Three High Breakdown Mill, Cast Steel Housings, Motor Driven Screw Downs, Complete with Pinion Stand, etc.

SHEAR—BAR

Mesta No. 8 Vertical Cold Bar Shear, Maximum Capacity 6" O.D. Carbon or Alloy Steel. Complete with Elecl. Equipment. New—Never Used.

STRAIGHTENERS

No. 6 KANE & ROACH SHAPE STRAIGHTENER, Belt Drive. Capacity 5x5x⅝" Angles, 2¾" Rounds & Square, 6x1" Flats, etc.

No. 7 Kane & Roach Shape Straightener, Belted Motor Drive. Capacities 3¾" Round & Square, 8"x1¼" Flats, 6x6x1" Angles, 18" I-beams & Channels

TESTING MACHINES

100,000 lb. SOUTHWARK-EMERY Universal Hydraulic Testing Machine

400,000 lb. Amsler Hydraulic Compression Testing Machine. Three dials with graduations for max. loads of 400, 1000, 8000, 20,000, 160,000 and 400,000 lbs.

RITTERBUSH & COMPANY INC.
50 Church Street, New York 8, N. Y.
Phone—Cort 7-3437

The Clearing House

NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Road Back to Controls—Used machinery dealers are back from their junket to Washington where they put government men straight on the state of the industry and its problems. They heard a plea for cooperation loaded with emphasis on rebuilding and made suggestions that will certainly yield a return to the World War II system of price controls and adoption of material priorities for rebuilding and maintenance of DO related equipment.

Expand Rebuilding — The exclamation point was put on rebuilding by government men because many stockpile reserve tools may stay stockpiled unless some rebuilding capacity can be opened to make them operable. While rebuilding capacity is considered by most unequal to the present task, many will admit that it can be greatly expanded if a greater profit lure is dangled.

Another incentive that machinery men suggested to Washington was financial assistance in expansion of rebuilding facilities. This might entail certificates of necessity for fast tax writeoffs and direct loans.

Priorities Will Help—Used machinery men were told that a priority system is in the planning process. It is needed to direct strategic materials, such as copper products, to the trade. Lack of these items under NPA restrictions has been turning shortage screws on the industry. Now relief is seen as near. Naturally priorities will be granted for DO orders only.

Impractical Price Freeze—The used machinery field is currently struggling with the general price freeze order. It chilled prices at the highest point in the given base period. But in the used field each dealer was frozen at differing prices—and as those on the short end of the stick can vehemently tell you, the gravy is being ladled unequally.

Return to OPA System—Thus the 65 to 75 dealers at the Washington session under the auspices of MDNA recommended a return to the OPA system of classifying machinery by year ranges, "as is" and "rebuilt grades," with the controlled price being determined by set percentages by year range and grade.

Government men also wanted the industry's help in locating needed tools as quickly as possible. Membership in a national organization would serve to consolidate information and accomplish this function.

Busy but Worried — In Pittsburgh, some dealers had their best business since the war but were worrying about their inability to replace what they sell—with inventories ebbing. One dealer has sold almost all his milling machines and geared head lathes. Some of the milling machines were about 30 years old.

Transition from civilian to defense work has forced some buyers to postpone closing of machinery deals. This will hold true in other markets also. One Pittsburgh dealer said that deals agreed to almost 2 weeks ago have not yet been closed because buyers must take heed of revised shop layouts before bringing in new equipment.

Crane Demand — More used cranes could be sold in Pittsburgh than are available. Prospective buyers must hunt about more than usual because the few cranes that can be had don't fill the bill.

This reflects strong demand for new cranes. New crane makers are quoting 15 to 18 months delivery even for defense orders. Add to this the fact that buyers cannot get new cranes unless they first get the steel to build them. That's facing two shortages for one product.